MAY 1911 25¢ A COPY
MOTOR BOATING · SAILING

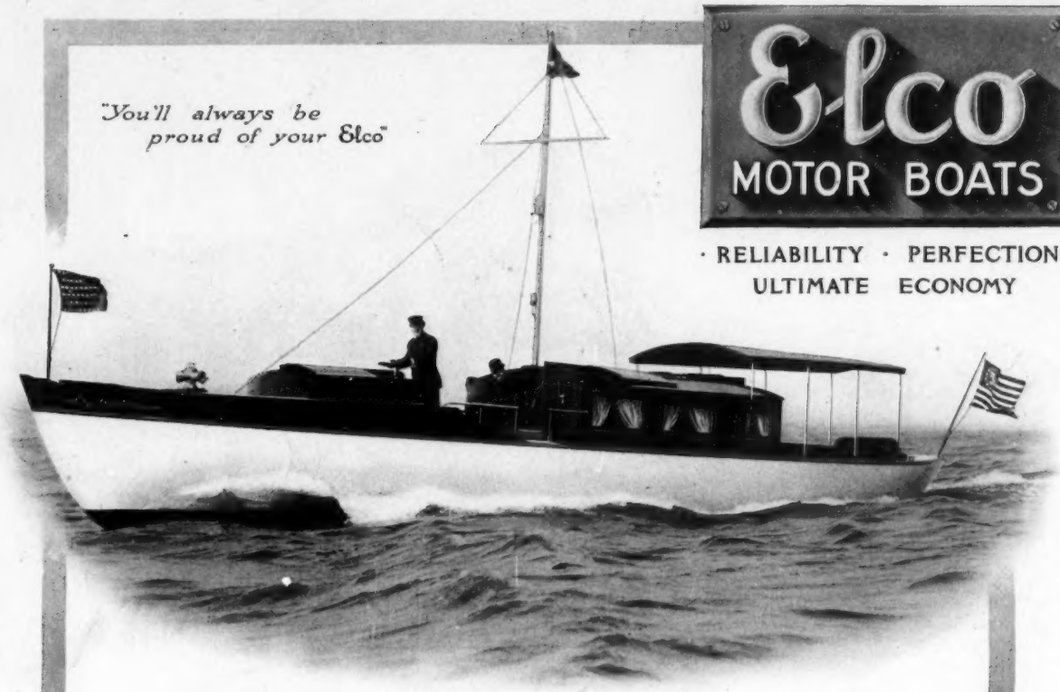
OF DETROIT
MAY 4 1911

Yachting

"You'll always be proud of your Elco"

Elco MOTOR BOATS

· RELIABILITY · PERFECTION ·
ULTIMATE ECONOMY



STOCK BOATS On Hand for Immediate Delivery

28-foot ELCO RUNABOUT. Large Comfortable Pleasure Launch. Speed 20 miles.

35-foot ELCO EXPRESS. Seaworthy Speed Launch combining Safety, Comfort and Luxury. Speed 24 miles.

40-foot ELCO DEEP SEA CRUISER. Sleeps seven. "Acknowledged to be the "Model 40-foot Cruiser."

ELCO EXPRESS. Comfort—Reliability and Twenty-four Miles Guaranteed

ELCO A. B. Gasoline Engines four and six cylinder suitable for any pleasure launch.

Write for New Catalogue

Address Elco *193 Avenue A. Bayonne, N. J.*

27 minutes from Liberty and 23rd Street Ferries. Central Railroad of New Jersey
Automobile Route 6 Miles. West 42nd Street, Ferry & Hudson County Boulevard

Contents—May, 1911

VOL. 9 NO. 5

FRONTISPIECE - - - - - - RACING ON GREAT SOUTH BAY

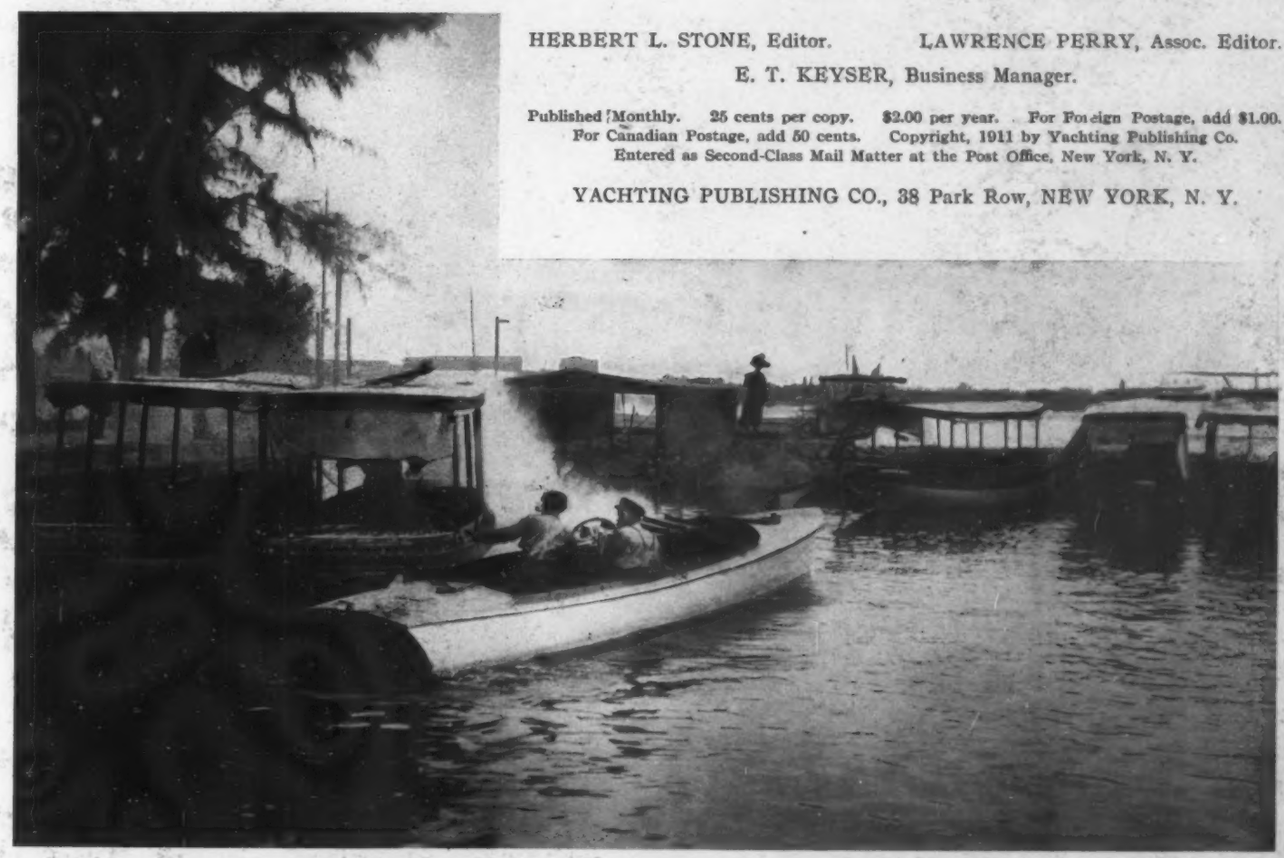
A CRUISE UP HAMILTON INLET, LABRADOR - - - - - - - - - J. T. ROWLAND 393
STEERING GEARS FOR MOTOR BOATS - - - - - - - - - - CHARLES H. HALL 396
THE CALL OF THE OPEN SEA - - - - - - - - - - - ROBERT SEAVER 399
THE MONACO MOTOR BOAT MEETING - - - - - - - - - J. RENDELL WILSON 400
THE PALM BEACH REGATTA - - - - - - - - - - - - - - - - - - 403
THE PART THAT "GASOLENERS" PLAY IN A CLUB CRUISE - - GEORGE STORY HUDSON 404
THE MONTH IN YACHTING - - - - - - - - - - - - - - - - - - - 408
THE OPERATION OF TWO-CYCLE MOTORS FOR GREATEST POWER - E. W. ROBERTS, M.E. 411
SOUTHWARD UNDER POWER AND SAIL BY THE INSIDE ROUTE. PART IV - A. M. FARRELL 413
NAVIGATION FOR THE AMATEUR. PART III - - - - - - - - CAPT. EDMUND MORTON 416
HOW TO BUILD A CHEAP AND SPEEDY 21-FOOT RUNABOUT - - JOHN A. CONNOLLY, JR. 419
READY FOR THE GUN. RESTLESS AT HUNTINGTON - - - - - - - - - - - - - 424–425
Photo by F. A. Walter.
THE LADY MAUD, SCHOONER YACHT - - - - - - - - - - W. CLARK RUSSELL 426
A 44-FOOT CRUISER AND DAY BOAT FOR LONG ISLAND SOUND - - - - - - - - - 431
A FAST 25-FOOT RUNABOUT - - - - - - - - - - - - - - - - - 432
AN ABLE 40-FOOT CRUISER - - - - - - - - - - - - - - - - - - 433
A 73-FOOT SEAGOING CRUISER - - - - - - - - - - - - - - - - 434
A 30-FOOT CABIN DORY - - - - - - - - - - - - - - - - - - - 435
EDITORIAL - 436
DRIFTWOOD FROM ALONG SHORE - - - - - - - - - - - - - - - 438–440–442
OF INTEREST TO THE SKIPPER - - - - - - - - - - - - - - - - 444–446–448

HERBERT L. STONE, Editor. LAWRENCE PERRY, Assoc. Editor.

E. T. KEYSER, Business Manager.

Published Monthly. 25 cents per copy. $2.00 per year. For Foreign Postage, add $1.00. For Canadian Postage, add 50 cents. Copyright, 1911 by Yachting Publishing Co. Entered as Second-Class Mail Matter at the Post Office, New York, N. Y.

YACHTING PUBLISHING CO., 38 Park Row, NEW YORK, N. Y.



RACING ON GREAT SOUTH BAY. FROM A PAINTING BY MALCOLM FRASER.
BELLPORT BAY YACHT CLUB ONE-DESIGN CLASS.

YACHTING

VOLUME IX NUMBER 5 May, 1911 25 Cents a Copy $2.00 a Year

INDIAN HARBOR, WESTERN ENTRANCE.

A Cruise Up Hamilton Inlet, Labrador

By J. T. ROWLAND

A FEW days after we arrived at Indian Harbor, Labrador, in the new mission-boat of the Grenfell Association and had got fairly rested from our 1,600-mile jaunt from the States, the doctor in charge of the hospital told me that he would like to have us make a run up Hamilton Inlet. Part of the work of the vessel attached to this Indian Harbor Hospital is to carry the mail up the inlet to a Hudson Bay Company's post at its head, in addition to ministering to the sick and carrying patients out to the hospital.

We got under way about ten next morning, with a fresh north wind drawing off the high land which forms all this part of the coast. As I had the new skipper and crew on board who were to take charge of the boat after we had them broken in a bit, I was anxious to put the little packet through her paces, so beat out of the harbor by way of the west "tickle," which is very narrow and walled by high cliffs. She handled splendidly, however, with a good breeze, and was soon swooping over the quick heave of the old North Atlantic outside.

The doctor spotted some fellows in a trap-boat fishing and suddenly remembered that he had promised to take the Hudson Bay Company's factor a fresh cod on the next trip. So I ran her up alongside and we got a couple of fine fish, then filled away again and held on west for the Narrows.

The vessel was the new auxiliary ketch Yale, 45 feet long over all, which had been built in Maine the winter before from designs by Chas. D. Mower and presented to Dr. Grenfell for use in his mission work on the rugged Labrador.

Just a bit of geography now, so that you will know what I am trying to tell about. Indian Harbor, where Dr. Grenfell built the northernmost of his hospitals, is located in the White Bear group of islands on the north side of Grosswater Bay in about 54° N. Lat. The bay itself is a large V-shaped bight in the Labrador coast about 40 miles wide at the mouth and something over that distance deep—east and west, that is. At its apex is the Narrows, leading up into Lake Melville, which, in turn, extends roughly 100 miles further west into the interior. The whole business—i. e., from the head of Lake Melville out to and including Grosswater Bay—is usually spoken of as Hamilton Inlet.

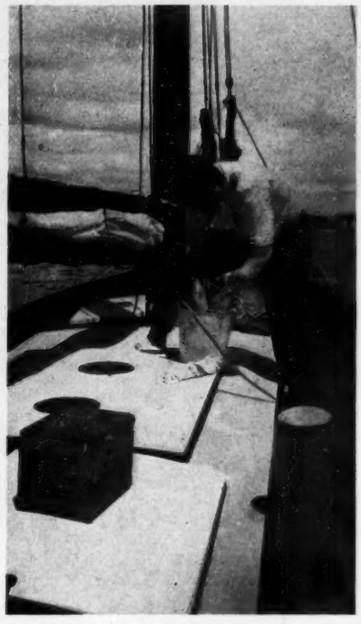
Well, we held on west along the north shore of the bay all morning, and it was very interesting to notice the change in the land as one got farther away from the outside coast. It became gradually lower and less sternly sinister in appearance, until finally, on passing a big promontory called Cove Head, we saw,

GRENFELL AUXILIARY KETCH YALE GOING UP HAMILTON INLET.

nestling in its lee, a small grove of spruce—the first trees Labrador had shown us. Several miles farther on the hills receded from the coast and gave way to lowlands quite heavily wooded.

After a hearty dinner of the succulent cod and canned beans, we came on deck to find the wind considerably lighter. As the afternoon progressed it moderated still more, and the doctor was for starting the engine, as otherwise we could not hope to make Rigolot (an H. B. C. post in the Narrows) by night. This was all right except for one thing—namely, that I had neglected to get more cylinder oil at Indian Harbor, and the supply which we had brought north was practically gone. However, he figured quite rightly that what there was might as well be used now as later, so I heated her up, and, after a few false starts, succeeded in getting things going. It was really remarkable how well that little 9-horsepower kerosener could send a heavy boat like the Yale through the water. They seem to develop more power than the gasolene breed when you once have argued them into starting.

As evening approached the sky became overcast, and we could see that it was "thick of fog" astern. Yet we raised the western land and had only about 15 miles to go to the Narrows when the fog finally overtook us; then there was nothing to do but anchor, since the srong currents in the bay render steering by compass alone unsafe. I could not very well anchor in the middle of Grosswater Bay, however, so ran for the lee of a nearby island, the bearing of which had been noted before the fog shut in. It was thick as pitch now, and absolutely dark. There was not a sound anywhere, except the muffled chug of our little engine and the splash of water under the bows. Suddenly up loomed the land almost overhead. I shouted at the man in the engine room to reverse, and he did; but the boat carried such momentum that before we knew it there were great boulders sticking up out of the water all around us and you could hear the lap of waves on the beach. It was evident the engine could not check her in time to prevent going ashore, so I tried a rather ticklish manœuvre—signaled the engineer to go ahead again, and at the same time ordered the helm put hard over. The result justified the risk. Our little ship spun around like a fox terrier—almost flipped a fellow standing forward overboard, in fact—and started off shore. When there was about 6 fathoms of water under her we anchored, and all hands turned in for some sleep. After that, when approaching land in a fog, we were always mighty careful to keep the lead going continually.



WASH DAY ON THE MISSION LAUNCH YALE.

That night was rather amusing in some ways. There were ten of us packed into the cabin: anyone with a sensitive musical perception would have had a hard time to compose himself if he once woke up after the concert began. We certainly did not need any fog signal to warn off passing vessels.

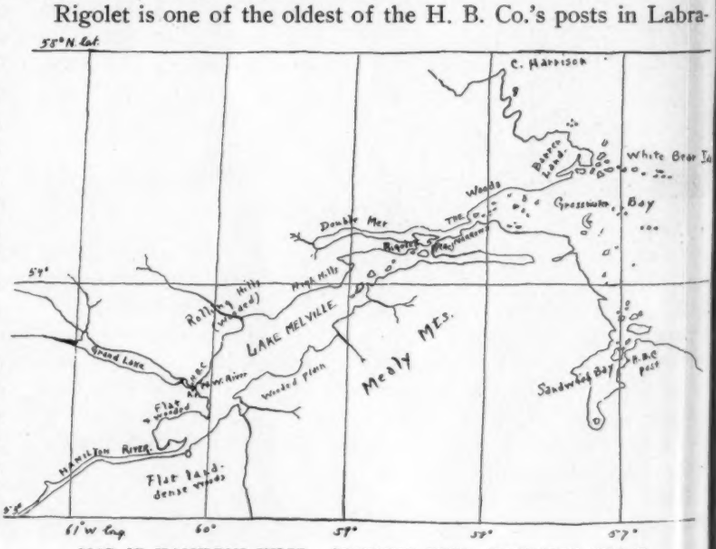
At daylight Fred, the pilot, woke me, and we started the engine. There was a weird morning mist all about and the water was absolutely flat—not a ripple anywhere. Several small seal were playing about nearby and barking like asthmatic dogs. They were cute little fellows, and seemed to be very much puzzled about the boat, for they would bob up and stare for awhile, then duck under and reappear soon in another place. Fred wanted to take a shot at them, but as we could not have gotten them aboard, it would have seemed useless murder. Some of the other fellows did pop away at them after we were under way, but I did not notice that the seals appeared greatly worried. The last we saw of them they were swimming away to the eastward.

Once the sun had come up the mist began to lift, and showed up a young archipelago of islets that we had passed unseen in the evening. Under the mist-cloud one could see the dark wall of the mainland ahead. This was quite high; when its summit was finally clear the sight was a very beautiful and impressive one. A long fjord stretched ahead into the heart of the land as far as you could see, bounded on both sides by steep, lofty hills, with the ragged peaks of the distant Mealy Mountains showing overtop.

Presently a fresh breeze came sweeping down the Narrows. Although it meant a long thrash to windward, we welcomed it, for the oil was all gone and I had perforce to stop the engine. Soon we had the tide against us as well, which was much more serious; but by noon the Yale had wormed her way up to Rigolet, thanks to Fred's skillful use of back eddies. The tide runs very strongly through the Narrows, since the average width is probably not over a mile, and there is all of Lake Melville to be alternately drained and filled.

At Rigolet all hands went ashore and had lunch with the factor and his family. The dinner was ample and excellently cooked, and was doubly welcome to us seafarers, as it meant we would not have to wash our dishes.

Rigolet is one of the oldest of the H. B. Co.'s posts in Labra-



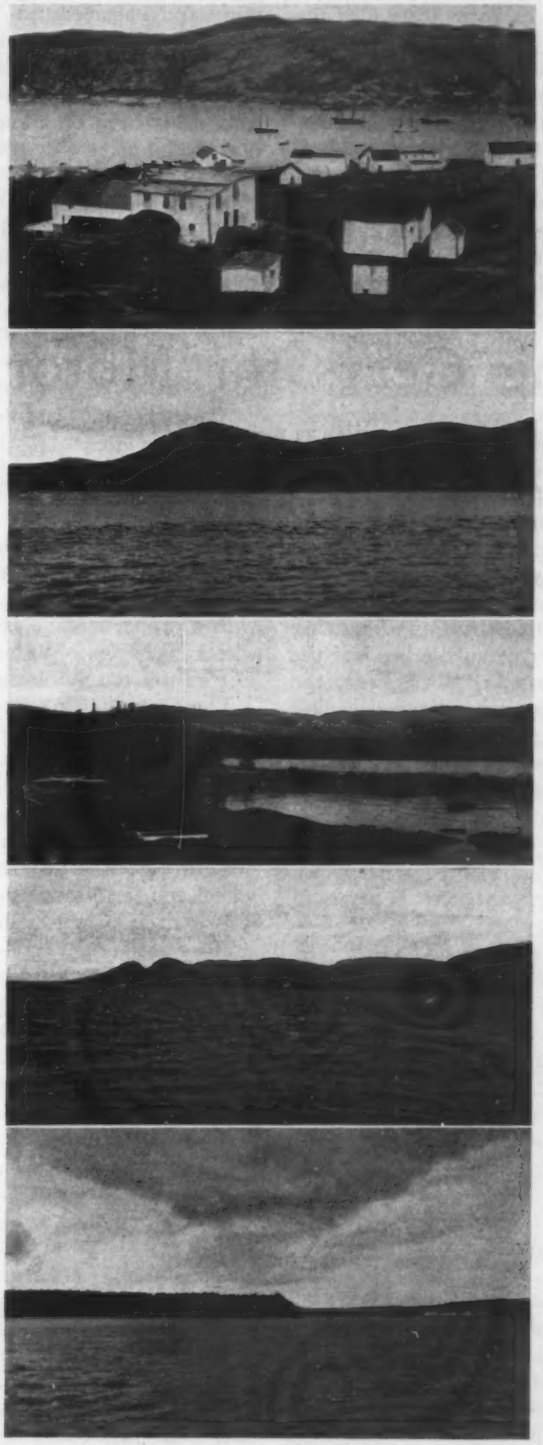
MAP OF HAMILTON INLET. SKETCHED FROM ADMIRALTY CHART.

dor. It was occupied and enlarged by the present Lord Strathcona when a factor in the company, then plain Mr. Smith. They say that during his factorship enough garden truck was raised there in the short northern summer to keep all the Labrador posts in "greens" for the winter. We could not help noticing that the climate was much balmier here than on the coast. Also, there were extensive woods, inhabited chiefly by vast flocks of giant carnivori of the mosquito species, which descended upon the post when the wind was right.

We spent several very interesting hours at Rigolet, then about five in the afternoon resumed our journey. The wind had shifted completely around into the east so as to be fair, and the last end of the flood tide was helping us along. Soon it came on to rain, however, and the air was gone. In this dilemma I got up a kerosene breeze, and for a while all went well. The doctor had secured some lubricating oil at the post, but it was not the sort our little friend had been accustomed to, and presently he began to get quite hot around the bearings, in indignation, I suppose, at the change of diet. About the same time the Yale passed through the edge of the ebb tide, tearing down from Lake Melville; thus we had no choice but to hook up for the night. Fred piloted the ship into a beautiful little harbor called Sloop Cove, where we came to anchor.

We had acquired a passenger at Rigolet in the person of an itinerant game warden, who came aboard with an empty belly and a huge sea-chest, which latter he deposited in the center of the cabin floor. Between feeding him and breaking our legs over his baggage we certainly came to love him before the voyage was over. That night he further abused our patience by appropriating the doctor's bunk, but did not stay there long.

Next morning, which came clear and bright, another daylight start was made, and sunrise saw us entering upon Lake Melville. Anyone coming on deck would have said that the ship had been transported to some beautiful Maine lake. Aside from the brackishness of the water, which the cook soon discovered, to his grief, there was nothing to suggest the sea we had so recently left, with its ice and fog-ridden coast. Trees abounded on both shores, and numerous islands lay scattered over the surface of the lake. One of them, the doctor told us, was a solid mass of garnets. Another, called St. John's, made quite a picturesque appearance. It is a continuous, extrusive sheet of old igneous rock, possibly a mile in length, and rising to an elevation which was estimated to be about 500 feet. From its top pretty much all the lake is visible. Off to the south'ard lay the gouged and tumbled mass of the Mealy Mountains, whose higher peaks we had seen the morning before when entering the Narrows.



INDIAN HARBOR. REAR OF HOSPITAL IN FOREGROUND.
IN THE NARROWS OF HAMILTON INLET.
A COVE ON THE SOUTH SHORE OF UPPER BAY, MEALY MOUNTAINS IN THE BACKGROUND.
ESKIMO PASS, HAMILTON INLET.
NORTHWEST RIVER, SHOWING HUDSON BAY COMPANY AND REVILLON FRERES POSTS.

As the sun rose the wind, which was ahead again, freshened to a reefing breeze, and we had a fine all-day beat up the lake. It was like a fall day back on Long Island Sound, except that the land was so high and the air so clear as to make the 20 miles across Lake Melville seem much less than the 10 miles or so of the Sound's width. By nightfall we were pretty well along, but the wind dropped, and it became necessary to fall back upon the engine. Midnight found us off North West River, for which place we had mail on board, so it seemed advisable to anchor and wait for daylight to cross the shoals here at the upper end of the lake. The Yale caused quite a little interest among the people of the two posts when we came to anchor in the stream off the H. B. Co.'s landing. I expect it was the first time any of them had ever seen a vessel flying the American flag on the lake; for, although the Yale was now officially a British ship (having been turned over to the Mission), Dr. Grenfell had given us permission to keep her under the old ensign that we brought north with her so long as we remained in charge.

North West River is a swift-flowing stream, a couple of hundred yards across and a quarter of a mile long. Above it is a small lake, then another short sluiceway, and above that again lies Grand Lake. This last is a beautiful body of water surrounded by high hills and about 40 miles long. The fishing there is said to be excellent; we certainly had no difficulty in getting a good breakfast of medium-sized trout out of North West River in a very few minutes. It was after they left this Grand Lake and attempted to penetrate the wilderness that Wallace and Hubbard went astray in their ill-fated expedition which cost the latter his life.

There is a trading post on each side of the N. W. River—that of the Hudson's Bay Company on the east bank and one belonging to Revillon Frères on the west. Although the two companies maintain a very keen rivalry, the respective factors manage to keep up a friendly, if not intimate, social relationship.

We spent the day and night following at anchor in the river, as it was Sunday. The doctor held services ashore, but the rest of us stayed on board and slept—which is not meant as any reference of an uncomplimentary nature, but rather as an indication of the fact that we had been pretty much on the jump all the time since leaving the coast of Maine over a month before and welcomed an opportunity for even a brief rest. All hands were kept amused during part of the evening by the performance of a couple of Indians in a canoe about the size of a small bathtub, who were trying, apparently, to get out aboard us from the Revillon post. At first we thought it was merely the swiftness of the current and diminutiveness of their craft which embarrassed them, but on their getting alongside it became apparent that the real difficulty lay deeper. The bow oar dropped his paddle, and, after a couple of futile clutches at the jigger rigging, succeeded in catching hold; then heaved his body up over the rail by a great deal of maudlin effort, and, in so doing, stepped squarely on the gunwale of his punt and capsized it. No. 2, in the stern sheets, scrambled up over the side of his upset craft with really amazing quickness, and when last seen by us was howling his soul forth to the stars and drifting down into the lake perched up for all the world like a tom-cat adrift on a keg. We had to lend the other fellow our dory to conduct a rescue expedition, but not until he had been sobered up somewhat by a judicious use of the stomach pump and a bucket of cold water over his head. Liquor plays the devil with these Montagnais Indians, as with all others, and they will sell their very canoes—to say nothing of their souls—in order to

(Continued on page 450.)

Steering Gears for Motor Boats

By CHARLES H. HALL

PHŒNICIAN vessels, Roman triremes and Viking ships were steered with a huge oar over one quarter, which could be triced up when at anchor or on the beach. As vessels grew larger the oar blade was gradually widened and a rudimentary tiller added, until some genius hung the whole affair on the sternpost and had a rudder. The simplest means of moving the rudder is by a tiller projecting forward from the head of the stock, but this is practicable only in small boats. True, the Chinese junks are to-day steered by enormous tillers sweeping the quarterdeck and requiring the services of most of the crew in a fresh breeze; but this method would not answer for the ships of a civilized nation. Relieving tackles were used to move the tiller, and are still in use on English yachts and fishermen; but the wheel is nowadays the universal standard for controlling the movements of the rudder.

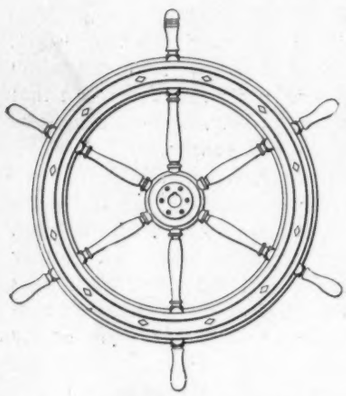
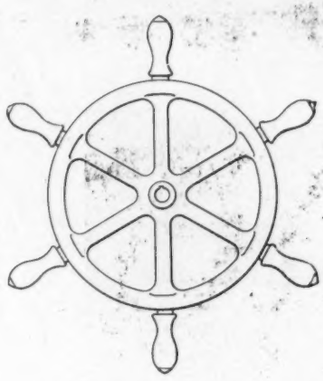


Fig. 1.—Wooden Wheel, Showing King Spike.



Figh. 2.—Brass Launch Wheel.

Sailing vessels must be steered from aft, that the helmsman may keep his eye upon the sails, so that windjammers use some form of gear with the wheel close to the head of the rudder stock and actuating it through screws, bevel wheels or tackles. Steamers are regularly steered from forward, and motor boats have generally followed their lead, the wheel being placed where the helmsman may obtain a clear view all around the horizon, but especially forward and abeam. Motor boats often have two steering positions, one forward for regular use in good weather, and another aft for use in very rough water, when the forward position might be untenable. In addition, all boats should have a spare tiller that can be shipped on the rudder stock in an emergency.

We need not enter into a discussion of size, shape and location of the rudder, as we assume that the designer has taken care of this. So we will assume that the rudder is shipped and fitted with a proper stuffing-box, and that the position for the steering wheel is chosen. We are then concerned with providing means to transmit the motion of the wheel to the rudder.

The first thing to decide is whether the steering gear is to be rigged "deep-water" or "inland." In deep-water and naval vessels it is customary to have the vessel's head and the top of the wheel move the same way; that is, if we wish the ship to go to starboard we move the top of the wheel to starboard, and *vice versa*. Tugboat men call this "a wrong wheel," as tugs and harbor craft, even large steamboats, are rigged just the opposite way, wheel and head moving in contrary directions. In a motor boat it is entirely a matter of personal preference, though the writer prefers the "ocean" style. As a coast pilot once said, "It always seems more natural to pull my ship over to me." If one is used to one style, changing to the other is very confusing, and may be dangerous if in a crowded harbor.

The steering wheel itself should be of decent size, and care must be taken to get the center at the correct height for the person who is to do most of the steering. A wheel that is too high or too low is a nuisance, as one quickly tires when taking his "trick" if forced to assume an uncomfortable position. The wheel must be of good design and ample strength, so as to stand any stress that may be put upon it. No iron or steel should be used in its construction, on account of the proximity of the com-

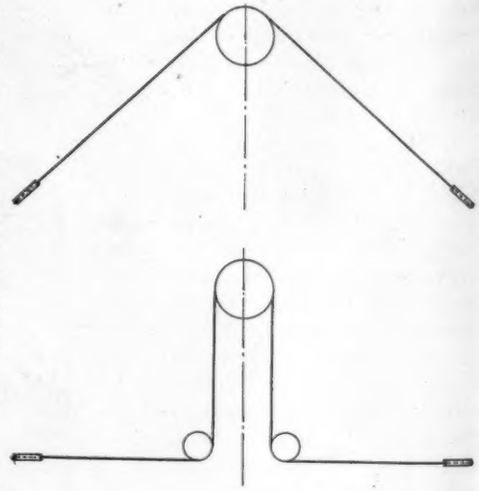


Fig. 3.—Two Forms of Leads.

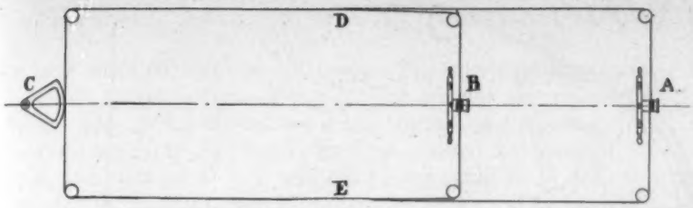


Fig. 4.

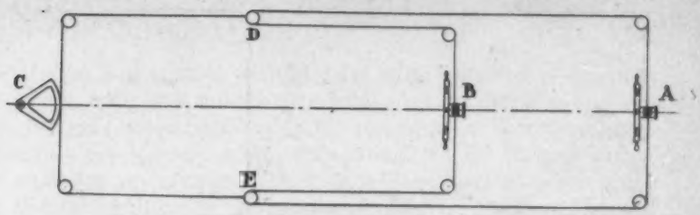


Fig. 5.

pass. The hub is generally of brass and wood, and the rim and spokes may be of brass or hardwood; the hand grips should be always of hardwood. A small wheel, one under 20 inches diameter of rim, is apt to look clumsy if entirely of wood, while the brass rim and spokes give an appearance of neatness and lightness. If one objects to the constant polishing, the brass may be left unfinished and painted an appropriate color. Wooden wheels, if properly designed and carefully constructed, may be very handsome. The hub, with its brass center, and the rim should be of mahogany or teak, to match the woodwork in its vicinity, and the spokes should be of locust or hickory. The hand grips should be of a size to give a good hold, and the one that is on top when the rudder is exactly amidships should be marked by two or three grooves turned on it, so that it may be *felt* in the dark. This spoke is called the "king spoke." In an all-wooden wheel the extension of the spokes forms the hand grips. In a brass wheel these are often secured to the rim between the spokes.

The horizontal or automobile wheel has become popular recently, especially for launches of the runabout type; but, somehow, it never seems quite shipshape. When fitted with its shaft vertical it always reminds one of a brewery motor truck.

The steering wheel is keyed to the shaft passing through its center and attached to the structure of boat or cabin. In open launches it is generally mounted in the forward part of the cockpit just below the coaming, though occasionally with shaft athwartship abreast of the engine. In cabin cruisers it may be mounted on the after end of the cabin trunk or on a stand on the forward deck. In any case, it should be strongly mounted and securely fastened, for often considerable force is exerted on it, either from hurriedly jamming the wheel hard over or from the helmsman's weight being thrown on it. The wheel is sometimes set to one side of the center line of the boat, but this is unshipshape and often inconvenient. Attached to the shaft of the wheel is the drum for the tiller ropes, or the pinion for rack and pinion gear, or a bevel gear. The drum may be of mahogany, gum, or similar wood, or sometimes of brass. Staples or stout eyes are provided for attaching the tiller ropes, and are placed one on each end, so that the two parts of the rope are in the middle of the drum when the rudder is amidships. The drum should be long enough to allow a turn or two to remain on it when the helm is hard over; in this way the tension of the rope when backing is taken up partly by the friction on the drum and does not come entirely on the lashings.

The rack-and-pinion gear is frequently used in cruisers. In this rig a small bronze spur gear is keyed to the end of the wheel shaft and meshes with a bronze rack working athwartships, to the ends of which the tiller ropes are attached. To reduce friction, the teeth of both rack and pinion should be machine-cut. The rack must be guided in its travel, preferably by rollers, and some means provided to take up the thrust of the gear by rollers or a guide back of the rack and a bearing on the wheel shaft close to the pinion. This rig is compact, as the rack can often be worked in between the deck beams or cabin carlines.

Where the wheel is mounted on deck or on a bridge, it is usually supported by a brass stand, the top of which contains the drum or a pair of bevel gears, the bottom flaring out in a graceful curve to a flange for the holding-down bolts. With a drum, the top is apt to be clumsy in shape, and the drum itself not readily accessible for attaching the ropes. With a pair of gears, however, the top is small and neat, and lends itself to installing a helm indicator. The vertical shaft passes down through the deck, and may have a drum on it or a pinion to drive a rack.

So much for the wheel and its gear. Let us turn to the means for conveying its motion to the rudder. This is done through tiller or wheel ropes, and these may be of braided cotton or of manila or wire. Hide rope was once much used on sailing ships. Small launches use the braided cotton or linen cord led over small sheaves and through screw eyes. The pull on such ropes is light and the wear not excessive, though even here it is better to have a braided cord with a bronze wire core, to prevent any possibility of breaking when any sudden strain is put upon it. For a boat of 35 feet or over wire tiller ropes are required. Large craft use steel wire specially designed for flexibility, each strand being formed around a hemp heart and the strands laid up around a similar center of hemp. They must be kept lubricated, and are apt to drop grease and dirt in inconvenient places. The best rope is made of phosphor-bronze wire, which is flexible and non-corrosive. It is difficult to splice properly, owing to its propensity to draw, and the strands must be "tucked" many times to prevent this. Recently a rope has been put on the market having a waterproof flax covering braided over a bronze rope or cord, which combines the cleanliness and flexibility of braided cord with the strength of bronze wire rope. Before reeving the tiller rope it should be well stretched, as it is annoying to have it constantly slacking up while in service. At the same time, this stretching must not be overdone or the life of the rope will be shortened.

The lead of the rope from wheel to quadrant must be carefully laid out, that it may be as direct as possible, out of the way, and yet instantly accessible. If led along the shelf and concealed by

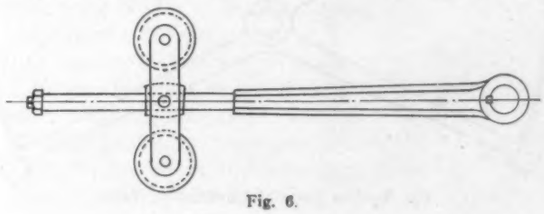


Fig. 6.

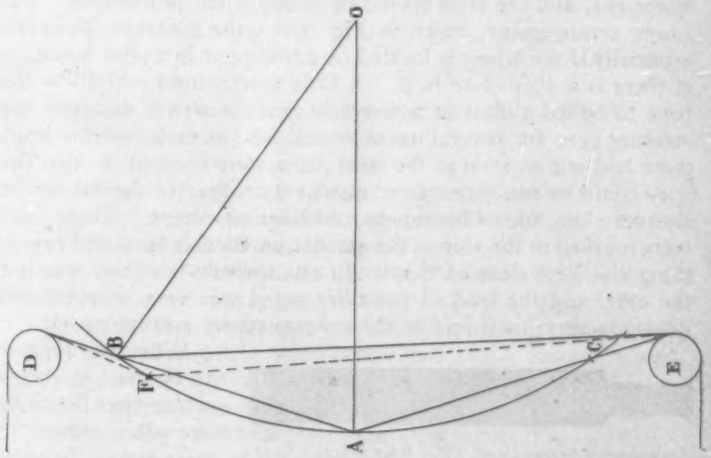


Fig. 7.

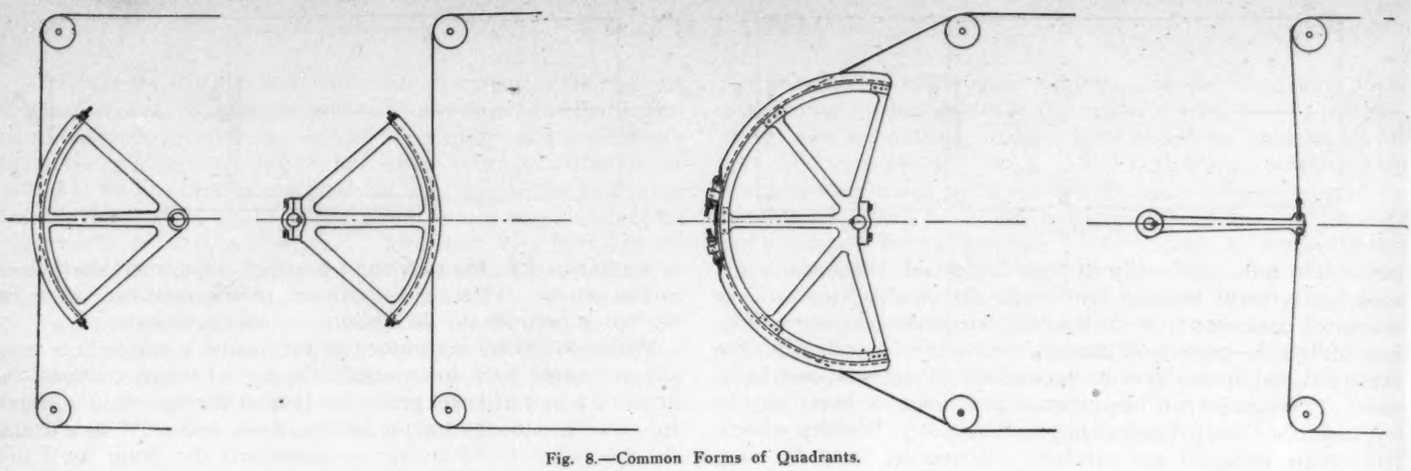


Fig. 8.—Common Forms of Quadrants.

a narrow panel, this panel should be hinged or buttoned in place, or at least put up with screws, so that it may be taken down quickly. If there is any part of the lead that is inaccessible the rope seems bound to part at that point. At each change of direction a large-diameter sheave must be fitted and carefully placed in the plane of the rope, which will then lead on and off properly. Remember that the sheaves for wire must be as large in diameter as for manila rope of *equal strength*. They are frequently made much too small, and the rope wears rapidly in consequence. The pins should be extra large also. If the sheave be at an angle with the rope, so that it does not lead exactly fair, the rope will rub on the lip of the sheave and the softer material will be quickly destroyed. As these sheaves are usually in places not easily reached for oiling, this necessitates metaline bushings, the graphite in these furnishing the proper lubrication. The sheaves must be well secured to the boat's structure, and not to light bulkheads. Where the rope passes through a bulkhead a brass thimble should be fitted, to prevent it from dropping and cutting the woodwork.

Fair-leaders must be placed at intervals to support the bight of the rope. These are generally fitted with small rollers, which work well when new, but soon stick on their pins and let the rope slide over them, wearing both it and themselves; a larger roller adds to the life of the rope. A fair-leader should be fitted close to each horizontal sheave to lead the rope on it properly. Small boats using the braided line generally have the tiller rope led through ordinary brass screw-eyes, which serve the purpose well enough in such cases.

As each change of lead requires a sheave, with consequent friction and wear, there should be as few changes as possible. For instance, the upper lead shown in Fig. 3 is more direct than the lower one, and the rope should be so led when practicable. The lower arrangement shown in Fig. 3 is quite common, however, especially if the wheel is located on a bridge or in a pilot house, or if there is a door close to it. A little forethought will allow the rope to be led almost in a direct line. The writer designed the steering gear for several naval vessels, and in each case the leads were laid out as soon as the steel plans were finished, so that the wire could be run direct from quadrant or quarter sheaves to the sheaves alongside of hand gear and steering engine. These lines were marked in the ship at the earliest practicable time and everything else kept clear of them. In one torpedo boat this was not the case, and the lead of the tiller ropes was very crooked and unsatisfactory, as it had to clear steam pipes, ventilators, etc.

Waterproof Bronze-Cored Tiller Rope Makes a Good Connection for Small Boats, Being Strong and Durable

When the boat is to be used in rough water two locations are often chosen to steer from. In open launches there is sometimes the usual wheel well forward, and a vertical lever fitted to slip in a socket in the after cockpit, this socket being a short lever pivoted at the lower end and secured to the tiller rope at the upper end. In cruisers there may be two wheels. Fig. 4 shows one way of arranging this. The two wheels are at *A* and *B* and the quadrant at *C*, the wheel ropes being connected at *D* and *E*. If this connection is permanent, the two wheels will both move when steering, and this may be inconvenient. If the after wheel is to be used only occasionally, its ropes may be disconnected ordinarily and made fast only when needed, using a pelican hook, turnbuckle, or similar device. Even then there will probably be some slack in the ropes, which means more strain on the gear and less perfect control.

The plan illustrated in Fig. 5 is intended for good-sized boats which need some purchase, which is obtained through the traveling blocks *D* and *E*. (These blocks must be supported and guided, and are of special design.) In this case the wheel not in use must be prevented from moving by stout beckets; the drum is thus fixed, and the rope leading from it acts as the standing part for the other. This same scheme may be used with one wheel in a pilot house and the other on top of it or on a bridge. Needless to say, the rope from traveling block to quadrant has twice the stress on it that the part from block to wheel endures. Fig. 6 shows another method of fitting a purchase.

Some means must be provided for taking up the slack caused by the gradual stretching of the ropes. The simplest thing is to fit a turnbuckle in the line, care being taken that it does not foul bulkhead or fair-leader, and that its weight does not cause the rope to sag excessively. It often takes the form of an eyebolt on the quadrant, with screwed shank and a nut and locknut to hold it.

The tiller is very popular for transmitting the motion of the wheel ropes to the rudder, consisting, as it does, of a simple lever keyed to the stock at one end and with eyes at the other for attaching the ropes. It may be either forward of the stock or abaft it, as most convenient. It has the disadvantage of causing slack

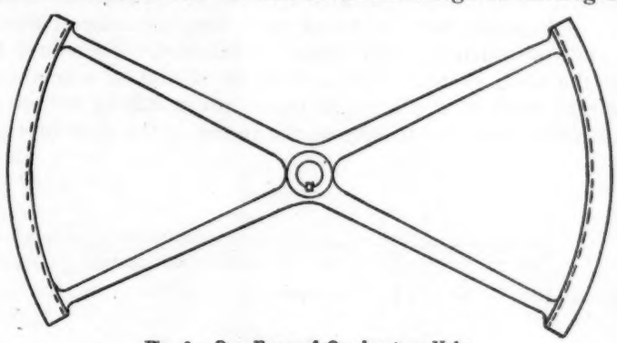


Fig. 9.—One Form of Quadrant or Yoke.

in the rope when put over any distance. Fig. 7 represents a tiller, *A O*, whose travel is from *B* to *C*. The quarter sheaves are at *D* and *E*. Now, when the rudder is amidships, the distance *D A E* is a certain amount. If the rudder be moved to some other point, *F*, the distance *D F E* will not be the same as *D A E*, but less, so that there will be slack in the tiller ropes. This does not matter much in a small open launch; but slack in the wheel ropes is always annoying, as the boat cannot be "felt" properly, and in rough water, or when backing against the hard-over helm, the rudder will move with a jerk that is very trying and may be dangerous. The end of the tiller may be machined and a sliding carriage fitted to it, the ropes being attached to this carriage. Then, when the helm is put over, the carriage slides toward the end of the tiller, and there is no trouble with slack, even when hard over.

With the quadrant, on the other hand, there is no tendency to slack the rope in any position, so that this rig is a favorite for boats over 25 feet long. The quadrant may be a quarter of a circle or more than a semicircle in its outline. It is keyed to the rudder stock at its center, and has one or two grooves on its rim to take the wheel ropes. If the ropes lie side by side in the same groove they will wear, so that two grooves or channels are provided, each with an eyebolt for attaching its rope. The quadrant may be forward of the stock or abaft it; the choice of position affects its shape, as does the location of the quarter sheaves. It must be so designed that the rope is always tangent to the rim and never nipped over a corner or pulling out on its securing bolt. Fig. 8 shows several common forms of quadrants. Small quadrants may be bronze castings; large ones are steel castings or forgings or are built up with steel plates. A special form, which is really a yoke, is shown in Fig. 9. This is fitted without quarter sheaves, the ropes leading directly forward.

Some form of stop should be provided to limit the travel of the rudder, as the maximum effective angle is about 41°, though stops are frequently fitted anywhere from 35° to 45°. The best type of stop is that used on tugboats, being fastened to the outside of the hull; the rudder then brings up on the stop and relieves the gear when backing. This arrangement is seldom practicable in a motor boat, so stops must be fitted for tiller or quadrant to bring up against. They should be located with great care and the position of the rudder checked before finally securing them. A rubber buffer on the face is sometimes used to ease the shock when putting the helm over and reversing the engine. Stops must be fairly stout, as the helmsman will sometimes keep on pulling at the wheel when the rudder is hard over, especially if he has gotten the boat into a tight place.

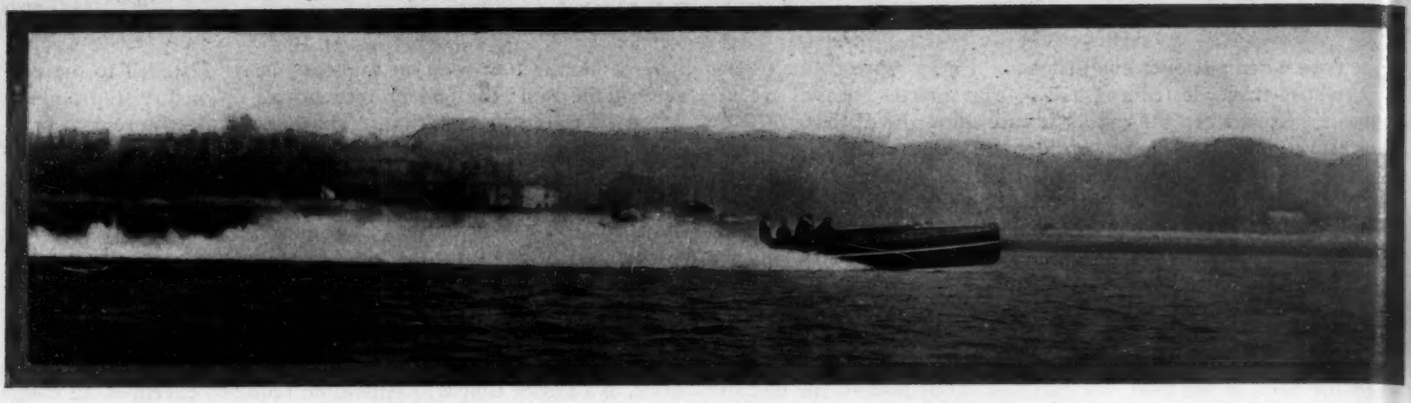
The spare tiller, fitted to ship on the upper end of the rudder stock, is a device that will seldom be required except in an emergency, but will then be badly wanted. If a wheel rope parts in a crowded channel, the boat may be steered by the spare tiller until able to make repairs. The tiller should be a stout forging of iron or steel, galvanized to prevent corrosion, one end an easy fit for the stock, the upper end of which is squared to receive it. The stock should extend close up to the deck and have a deck plate or hatch over it to allow the socket of the tiller to enter. Sometimes the head of the stock extends through the deck and is covered by a cap. Whatever the arrangement, the tiller must be stowed where it can be reached *instantly*.

The power of steering gear varies between wide limits. In small boats the wheel is small and the drum large in proportion, two or three revolutions bringing the rudder from hard-over on one side to the corresponding position on the other. In such a boat the strain on the gear is not excessive, and little power is required to move the wheel, but close steering is not very easy. In a large boat the wheel is larger actually and also in proportion to the drum, and more turns are required to put the rudder hard over. Greater nicety of steering is thus permitted, as moving the wheel "one spoke" causes but a slight movement of the rudder. It takes a little more time to put the helm hard over, but one does not manœuvre a 90-footer and a 20-footer just alike.

THE CALL of the OPEN SEA

WHEN the salty wind comes up from the sea
I feel that I've got to sing—
Not the usual song of the briny deep,
Nor the threadbare Ode to Spring;
I've a hunch that the lines of the budding poet
Make no hit with the yachting man,
So the song I offer is modeled upon
An entirely different plan.
When the smell of spring is in the air
I fasten the office door,
Then it's me for the jumper and overalls,
And the brierwood pipe once more;
It's me for the brush and the copper paint
And the odor of marlin twine,
It's me for the scraper and painter's torch,
The strenuous life for mine.
I ask no happier lot than this,
Than to scrape and to paint away
In the yard where my boat, my sturdy boat,
Has waited for launching day.
The slap of the brush on her shapely side
Is a sound that is good to hear,
And the tap of hammer and whistling plane
Are sweet in the yachtsman's ear.
Yes, the spring-time noises are all about,
And they sound mighty good to me
When over them all comes the salty wind
And the call of the open sea.

ROBERT SEAVER.



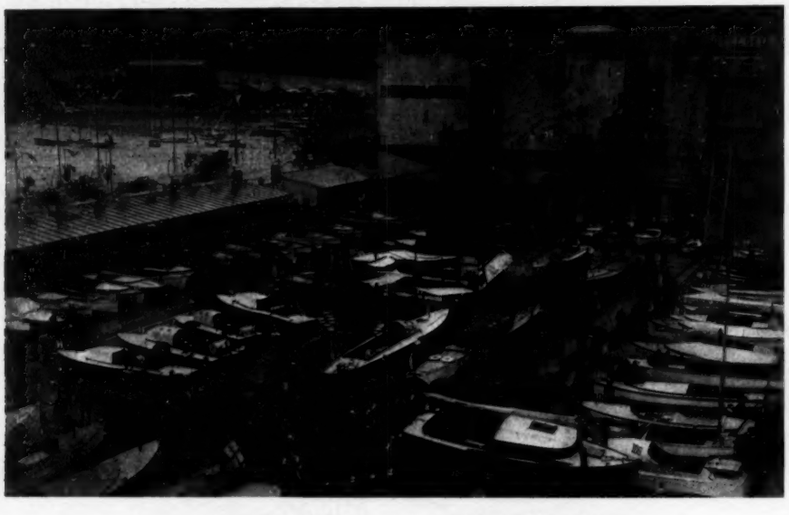
MAPLE LEAF III DOING HALF A MILE IN 32 SECONDS ON THE THAMES.

The Monaco Motor Boat Meeting

DETAILS OF CRAFT AT THE EXHIBITION

By J. RENDALL WILSON, SPECIAL CORRESPONDENT FOR YACHTING

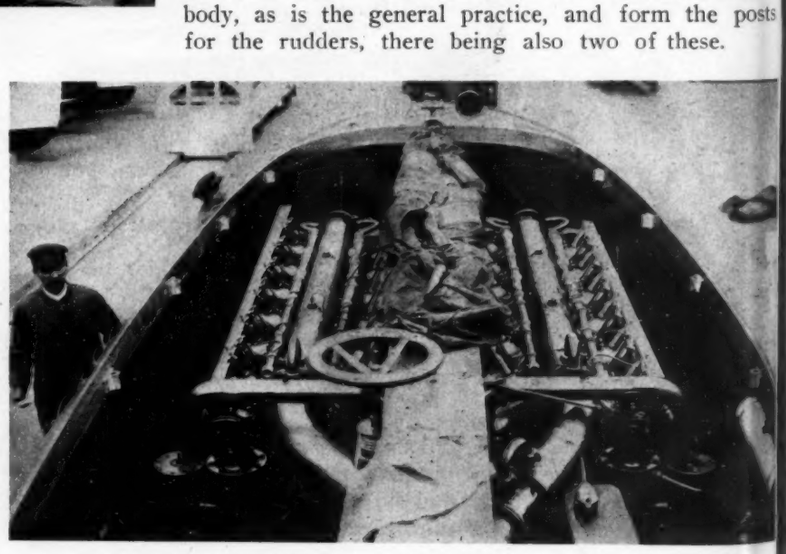
SURPASSING all records, from a numerical point of view, the eighth annual exhibition of motor boats at Monaco was opened on Sunday, April 2, by the Prime Minister of the little State, the Prince of Monaco being indisposed. At the time of opening no fewer than 98 boats had been placed on exhibit, as against 85 last year, an increase of 13. It was a great disappointment to find that America was not represented in the unrestricted racer class, and, except for two small, unimportant French boats fitted with American engines, that country was not represented at all on the list of entries. I heard many expressions of regret that there was no boat to bear the American colors at the most important international motor boat meeting of the year.



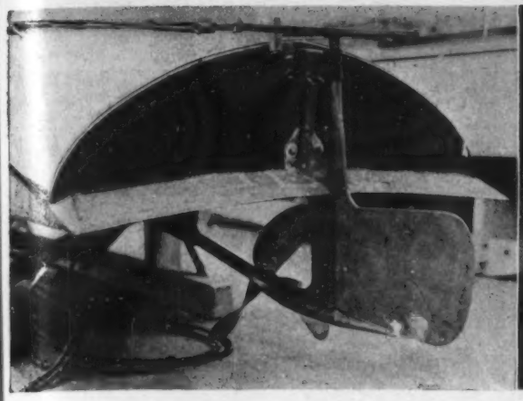
GENERAL VIEW OF THE MONACO EXHIBITION.

The center of attraction at the exhibition is Mr. E. Mackay Edgar's hydroplane Maple Leaf III, which, on her trials, a few days previous to being despatched to Monaco, covered the measured half-mile in 32 seconds—that is to say, she attained the astounding speed of 49½ knots (57 miles per hour), which seems almost too wonderful to believe, it being an increase of 10 knots over the speed of Pioneer last August at Larchmont. But the timing can be relied upon, as it was in capable hands. The extraordinary part is that her engines were not pressed at all, so it is likely that she has a few knots up her sleeve. I may add that this boat has been entered for the B. I. Trophy contest next August.

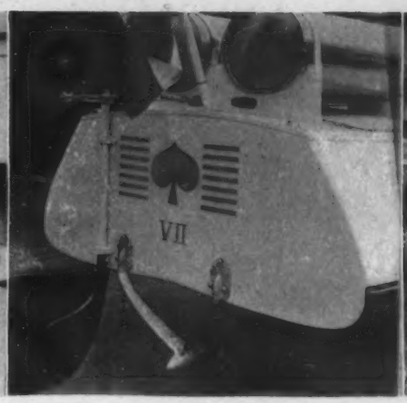
From designs by Thornycroft, she is of the Miranda IV type, and is just under 40 feet in length over all by 9 feet beam. She is the beamiest boat in the grounds, but in several points of her design she differs from Miranda. She is equipped with two 12-cylinder V-type motors driving twin screws. One of these engines was taken from the unsuccessful Maple Leaf of last year, which was built by the Orleans Motor Company, while the other is a duplicate constructed by Dixon Bros. & Hutchinson, builders of the hull. Both engines were designed by Mr. W. Astell, who is in charge of the boat here. There is also a small engine for starting. Each engine develops over 350 horsepower, so there is an enormous force behind the propellers, which, by the way, were designed and made by Thornycroft. They are magnificent examples of the propeller maker's art, and are particularly noticeable for their great pitch, rendered necessary by the unusually high-speed conditions. They are placed forward of the brackets, in order to avoid cavitation. The brackets are bolted to the flat transom stern, instead of to the underbody, as is the general practice, and form the posts for the rudders, there being also two of these.



THE TWO 12-CYLINDER, V-TYPE, 700-HORSEPOWER ENGINES OF MAPLE LEAF III.



STERN OF LURSSEN-DAIMLER, A GERMAN STEPLESS HYDROPLANE.

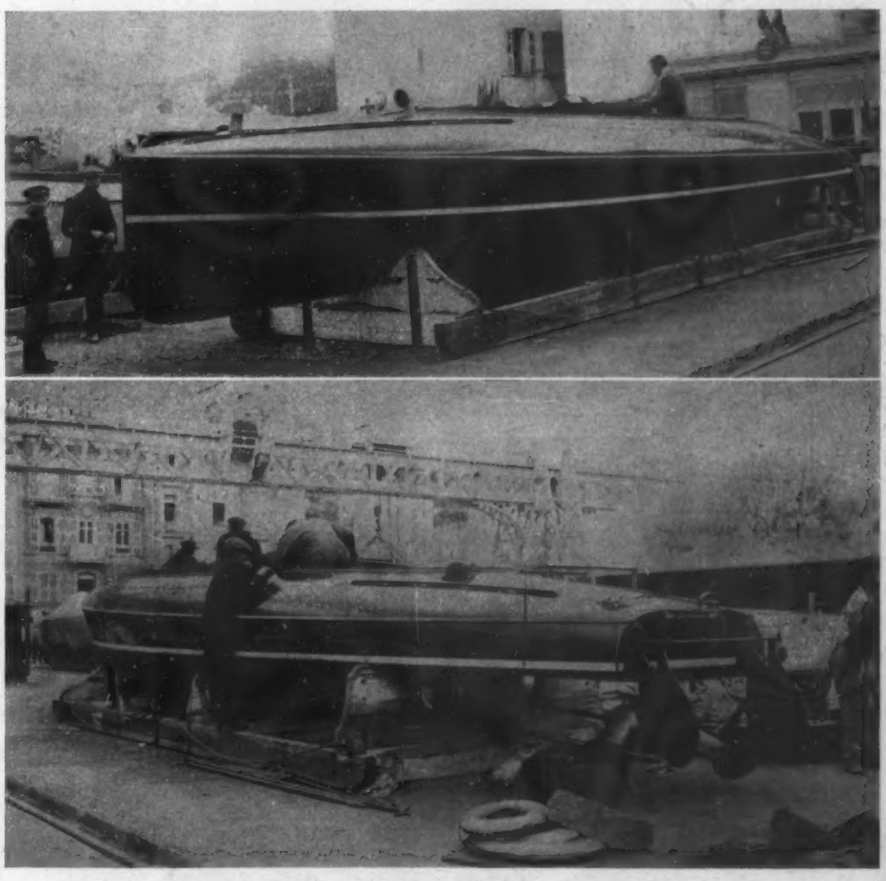


STERN OF GERMAN HYDROPLANE PIK-AS VII.

MIRANDA IV, SHOWING UNDERBODY.

Regarding the hull design, she has the hard chine of Miranda; but it commences, not from the bow, but about 4 feet from the stem, and, running to the keel, ends abruptly in a deep step almost amidships. Looking from forward, she resembles somewhat a sharpie type of hull, with a concave V underbody. Aft of the step the sections are nearly flat. Miranda's stern is nearly pointed, but Maple Leaf III has a broad, flat transom stern. From stem to stern there is a slight, but graceful, sheer, although her topsides have been carried well up, making a pretty curve from stem to stern, so that she is almost decked in. In spite of her excessive beam, she is a fine-looking boat, and the beam gives ample room for her four rows of cylinders. She is built of mahogany, with three skins forward of the step and two aft. For cooling purposes, each engine is fitted with four 1-inch pumps.

Looking spick and span is Maple Leaf's forerunner, Miranda IV, which has been purchased and brought to Monaco by Lieut. N. Sampson. Her highest unofficial speed is 37 knots, but officially she attained 35.6 knots, on a mean of six runs, with her 120 horsepower Thornycroft engine. For the first time her underbody can be studied carefully and many interesting features noted. She is of a V-type, with a hard chine fore and aft. A little forward of amidships there is a slight step, and at this point the turn of the bilge is quite sharp. There is an upward curve aft of this step reaching nearly to the stern, where there is another downward bend, forming a plane parallel to the forward one. The bilges along this plane are also sharp, but between the two they are rounder and more like a normal hull. Her topsides are nearly vertical from stem to stern, the latter being brought to a point—club-footed, one could almost say.



BOW AND STERN VIEW OF MAPLE LEAF III.

Owing to propeller troubles, the Duke of Westminster's new Fauber type hydroplane Brunhilde was replaced at the last moment by his famous old 50-foot racer Ursula. Little need be said about her; but her hull is the finest bit of boat construction in the exhibition, despite the fact that she was built three seasons ago, this being her third appearance at Monaco.

Last year one of the prettiest boats was undoubtedly Cocorico, a Despujols hull, with a Brasier engine; so it is a great disappointment that Cocorico II has not put in an appearance up to the time of writing. France, however, is well represented by hydroplanes, although by no unrestricted displacement racers. The most likely of these is the Clémont Despujols. She is of the box, or flat-bottomed, single-step type, just over 8 metres long, and, as her name suggests, was designed by Despujols, and is fitted with a 4-cylinder Brasier motor. If the sea is calm, great speeds may be expected from her; but a swell, or choppy water, will tell strongly against her flat bottom. This applies to several other of the French hydroplanes.

Another Despujols boat, Gregoire X—a stepless hydroplane—is very notable, by reason of the extraordinary height of her engine. She belongs to the 6½-metre class, and is fitted with a 90-mm. bore by 300-mm.

(Cont. on page 460.)

1
2
3
4
5
6
7
8

The Palm Beach Regatta

VITA AT FULL SPEED.

THE seventh annual regatta and race week of the Palm Beach Power Boat Association, which was held on Lake Worth, Fla., March 14-17, inclusive, was one of the most successful that has ever been held by that association, and not only brought out a fine class of boats, but better time was made than at any previous regatta.

There were twenty-two entries, twenty boats actually taking part in the four days' racing, this number including many new boats built for this event and for the 1911 racing. Good weather marked the four days' event, with the exception of the third day, when a heavy northerly gale kicked up a high sea on the shallow lake and the crews of all the boats had a wet and disagreeable time of it. In spite of this, however, all of the races scheduled for that day were run off, and demonstrated that the modern speed boat is capable of standing rough water when necessary.

The principal events were the Speed Record Trials for the $500 Palm Beach Cup (the winner's time in this event averaging 27.02 nautical miles per hour, an average of six trials over a mile course) and the endurance race on the last day. For this later event Mr. W. F. Coachman had a new boat, the T. & S., built with a special view to capturing it and the $2,500 cash prize, as he had already won one leg on this prize last year. This is probably the most important annual power boat event in this country, the cup and cash prize having to be won twice by the same owner before becoming his property.

The race this year was one of the most sensational ever run, and the winner was Mr. W. F. Coachman's new boat T. & S., fitted with a 100-horsepower, 8-cylinder Sterling engine. When the time was announced it was discovered that a new record had been made for a long-distance endurance speed contest. The race was twenty-three times around the 4½-knot course, a distance of 103.5 knots, or 119.18 statute miles. The average time made exceeds the best previous time in a long-distance contest in this country. It was quite a coincidence that the 1909 race was won by Courier I with a 100-horsepower Sterling engine, while the 1910 race was won by Dewey, also with a 45-65-horsepower Sterling.

KULEOFF AND BILL.

As Mr. Coachman owns both the Dewey and T. & S., the $2,500, with interest and entrance money, amounting to over $3,000, now becomes his property.

The performance of T. & S. was one of the best ever witnessed. When one stops to consider that this engine was run at practically full speed, or wide open, for over four hours, without a miss or a skip, and without any trouble whatever, it will give an idea of the performance of the engines that made this record possible.

The full list of the various events and the winners of the first and second prizes in each follows:

FIRST DAY'S EVENT

Speed record trials for Palm Beach Cup, value $500. Average six trials over mile course:

Won by Ace II, W. W. Trimpi, 100-horsepower Sterling. Average speed 27.02 nautical miles.

Second, T. & S., W. F. Coachman, 100-horsepower Sterling. Average 24.03 nautical miles.

Speed contest for Florida-designed and built boats. The Association Cups, 9 miles:

Won by T. & S., W. F. Coachman. Time, 31m. 55½s.

Second, Dewey, W. F. Coachman, 45-65 Sterling.

A. P. B. A. handicap race, 9 miles (Class A):

Won by Ruth K., C. S. Smiley, 30-45 Sterling. Time, 33m. 31½s.

Second, T. & S.

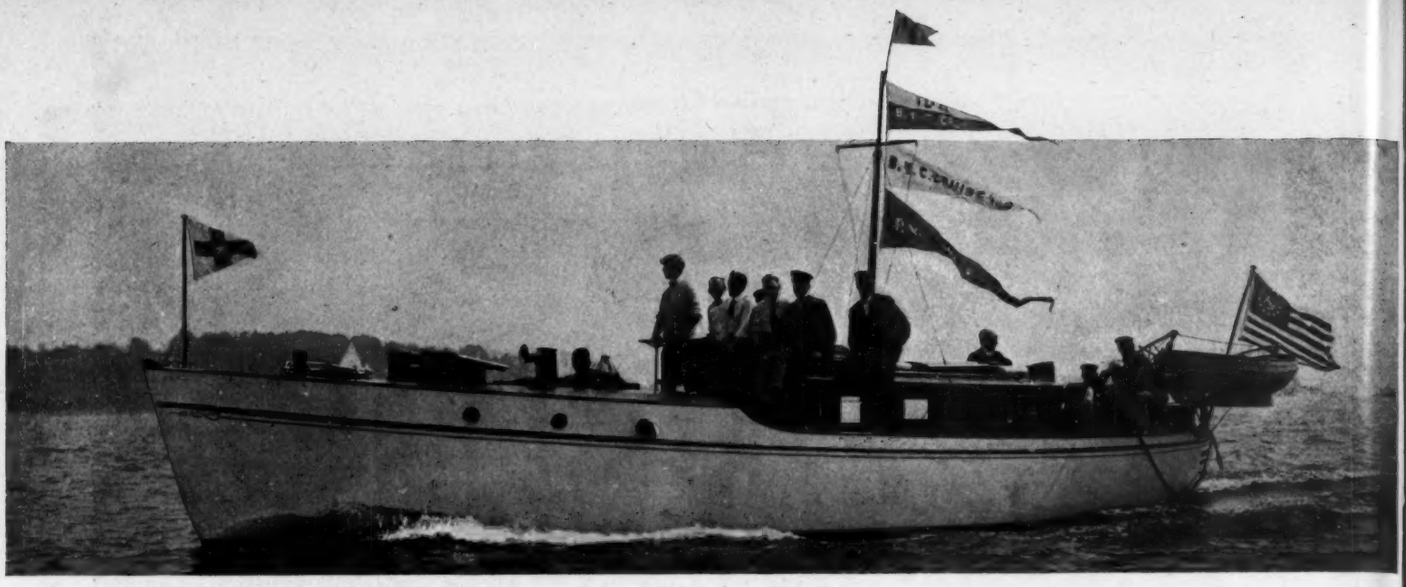
Vita finished first in this event, but she was disqualified for crossing the line too soon.

SECOND DAY'S EVENTS

Class B, under 32-foot waterline, J. S. Barron Cup, 4½ miles:

Won by Suelo, J. K. Clarke, 18-25 Sterling.

(Continued on page 458.)



ZUI ZIA, TENDER OF THE SCHOONER SHIYESSA IV, IS FREQUENTLY USED AS A COMMITTEE BOAT DURING REGATTAS AND CRUISES.

The Part That "Gasoleners" Play in a Club Cruise

BEING AN ACCOUNT OF THE BOSTON YACHT CLUB'S ANNUAL JAUNT TO THE FASTWARD AND THE IMPORTANT PART PERFORMED BY THE POWER BOATS THEREON—THE WORK OF COMMITTEE BOAT, STAKE BOAT AND TUG DONE AS WELL AS IT EVER WAS BY STEAM

By GEORGE STORY HUDSON

A CRUISING sail yacht not muscled with a motor is like an automobile with but one set of tires. Some day, perhaps twice the same day, her owner may find himself in the position of the hobbling chap who suddenly needs a crutch that's not to be had. Buyers, as a rule, demand power when they scan the sales lists of windjammers, because they have arrived at a frame of mind when it pays to be particular. Brokers politely ask, when a duck-swinging boat is offered, if she has a motor. Naval architects suggest provision for the handy, helpful mill, urging a shaft log, even if the hole is to be plugged for a year or two. They all sense the trend of the times—mighty commendable, don't you think?

Towing companies who operate hell-mawed steam vessels are bowing to the knowledge that gasolene is encroaching on their domain, is dwindling dividends—pounding the oakum out of garboards, as it were. Competition is clarifying an atmosphere heretofore surcharged with high-lights before tugs passed a line and shook up engines. Gasoleners are humbling the fussy, rusty towboats, particularly in harbors and other inland waters where charges for moving shipping have been slashed, as the department-store advertisement man would put it, "one-half or less." The waterfront is gleefully shouting at such complete victory of the youthful David over the coal-eating Goliath.

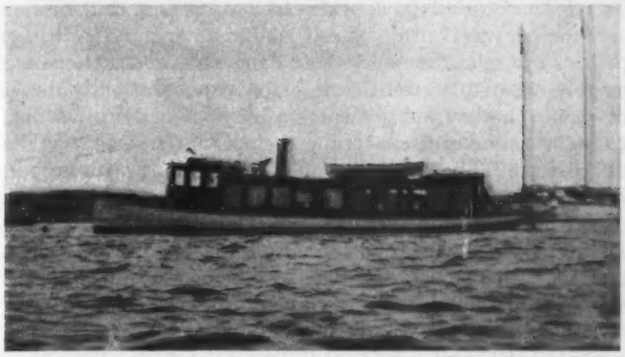
Tug skippers dote on Yachts! Because they are fine to look upon? Nay, nay! Because they represent meat, a legitimate prey. Yachtsmen, I've heard it said, are credited by the towing fraternity with possession of vast wealth. Oh, fine! were it always so. Unfortunately, however, some of us are forced to spill our wind along the ragged edge to keep up appearances afloat; but, then, we have our fun, and in 100 years it won't matter very much.

I have in mind an instance where a tug made considerable pin money assisting yachts up against hard luck. It happened a few seasons ago when a handsome schooner luffed into the Handkerchief Lightship in Nantucket Sound. She was sadly mussed, and crept back to Vineyard Haven. A tug was sent from a port—a trifle over 10 hours' steaming—with instructions to tow the schooner to a repair yard. A screaming northwester had puffed its lusty lungs and littered the coast with tribute—something quite out of ordinary for early August.

The tug pounded around Cape Cod and fell in with a crippled sloop yacht wallowing under Nauset, where the beach frothed and waited, with a big freight steamer standing by. The tug picked up this craft and took her to Vineyard Haven, where she hooked on to the schooner, after dropping her westward tow, and delivered her in port. This job represented about two days' work and perhaps 250 miles in distance, for which the company is said to have received about $700, apportioned between the two lame ducks. Not a fortune to many yachtsmen, of course; but that same $700 would have bought a lot of smokes and jolly water and juice for the auxiliary that has a right to shake her skirts at hard-fisted steam tugs, unless she happens to steer west by Fahrenheit and bumps the land.

Tug hire has been a thorn in the flesh of yacht clubs these many years when arranging for important regattas where committee boats big enough to accommodate officials and collation and guests have been needed. Appropriations of from $50 to $100 have been set aside for the tugs, and the process has savored of wringing blood from a stone, the dollars came so hard. As a money-saving possibility loomed motor boats, which were borrowed on state occasions and filled the bill to perfection, leaving more money for trophies, cash prizes and thicker slices of ham in the sandwiches, not to forget a prettier label on the bottles that sweat in the tubs under the awning. With a single exception, tugs were not hired last summer by clubs giving regattas in Massachusetts Bay, power cruisers or launches being used for the purpose with complete satisfaction.

The Boston Yacht Club decided that a tug could be dispensed



TIDY-ADLY, HOMELY BUT HONEST. AS COMMITTEE BOAT AND GENERAL ROUSTABOUT SHE TOOK THE PLACE OF A STEAM TUG.

with, last summer, as convoy on its cruise to the eastward, which long ago became a classic. The flight of from 75 to 100 pleasure vessels across the Gulf of Maine is an inspiriting spectacle—an event held in eager anticipation by yachtsmen enrolled in this powerful organization of nearly 900 members. Let's see how this tugless cruise worked out. Results proved many things of interest to other clubs perhaps less progressive or lacking the initiative.

The character of the Boston Yacht Club's squadron has greatly changed within the past few years, and this must be considered in summing up incidents of which I am about to write. Motor-propelled craft have appeared in a variety of types, steam yachts of considerable tonnage having dropped out of the running. Every opportunity to test the merits of gasolene as compared with steam was afforded during the seven days of work at sea, and there was not a single mishap to mar the runs from port to port.

The crop of auxiliaries, too, was larger than ever before, and to the regatta committee, members of which body have followed the fortunes of cruisers for a number of years, it seemed as if nearly all the white-winged contingent had motors tucked below decks, to be called on for assistance in working among ledges while entering some of the rock-strewn dents in the granite coast where halts were called for the night. The auxiliaries performed so consistently that yachtsmen who had hesitated about making a purchase of motive power for one reason or another have, in a number of instances, declared themselves openly as converts to the kicker as an adjunct to the breath of heaven.

Daily runs, as provided by the committee in charge of the cruise, appeal to the majority of yachtsmen, and that plan was followed in arranging the itinerary for last summer. These short runs make it possible for the fleet to reach a harbor, weather permitting, early in the afternoon, and the men of the fleet are thus afforded plenty of time to "slick up" for pleasures ashore when dusk has blotted out a glimpse of the sea. Starts are made early in the day, generally about 9 a. m. Sometimes the course lies a shimmering mirror of silver when the committee boat fires the starting gun, but on such occasions the motor craft come to the assistance of the helpless sailors and tow them up to the line. This condition obtained several times on this particular cruise, and but for the gasoleners chances are that some of the yachts without motors would have had long and disagreeable passages across a sea like heaving velvet and under rays of a sun of fiery copper hue.

From South Boston the cruise started on Saturday, July 9, 1910. A stiff southeast breeze was stirring when the committee boat, Tidy-Adly—a twin-screw motor craft of about 50 feet overall length and 40 horsepower—began to fire the starting guns, with all the precision and noise of a ship-of-the-line. The Tidy-Adly was chartered because club members who had fairly good-sized cruisers could not spare them even for a week, and the stock of available motor boats in Boston and vicinity was altogether too low for the committee to make anything like a selective choice.

Whoever designed the Tidy-Adly would never recognize the boat under her present form. One must delve into the past quite a distance to arrive at the milestone when she was a humble catboat, big, able and fairly good-looking. She changed hands, and was lengthened and widened in such a comprehensive manner that the hull was practically rebuilt. Power was installed, and the boat, with considerably augmented passenger accommodations, was placed in service as a ferry in the vicinity of New Bedford. A Boston theatrical manager took a fancy to the craft, and again she was placed in a hospital for hulls, and surgeons in wood grafted material here and there in spots till she was discharged, finally, transformed and rejuvenated. More recently the Tidy-Adly—once called Gertrude—had two 20-horsepower motors installed, her saloon was refitted, and other conveniences added till really she was comfortable and convenient, despite the name she bears. This, then, is the craft that carried the committee Down East and back again without a whimper from the throbbing motors that performed all expected of them, day in and day out, with considerable towing thrown in as a test of their strength.

While the Tidy-Adly was bombarding the atmosphere with her brass cannon the Judy III, also chartered by the club as a despatch boat for use of the press representatives during the cruise, started for Marblehead, a distance of about 14½ miles, where she was to take finish times of the racing cruisers. The Judy III is a semi-speed type, not more than 26 feet long, and open, save for a light hood over her 10-horsepower motor. Hard work was in store for this little boat, for she was to accompany the fleet to Boothbay Harbor and perform all manner of cab drudgery, as occasion should demand. Few smaller craft have accomplished what the Judy III can show to her credit during this cruise. She was designed and built by W. Starling Burgess two years ago as the Goblin. The writer remembers seeing her out in Massachusetts Bay late one fall day when she had been driven out beyond the lightship to meet the Saxonia, arriving from Liverpool and Queenstown. The then Goblin was brought close up to the side of the liner and maintained her relative position for a distance of six or seven miles to Quarantine, and after the Saxonia had received her health certificate and started up harbor to her berth the Goblin again glued herself to the ship's starboard quarter and kept with her, with almost total disregard to possible disaster through suction, till the liner had berthed. One may judge, then, that the press despatch boat Judy III is by no means a senseless toy, fit for little else than a receptacle for plants in somebody's front yard.

Reporters jumped into the Judy III and away she started through the haze for Marblehead. The breeze freshened when

JUDY III, DESPATCH BOAT ACCOMPANYING THE FLEET. FREQUENTLY USED AS A STAKE BOAT.

"THE AUXILIARIES TOWED THE RACERS TO THE LINE."

she had Nahant abeam, and the rising sea persisted in boosting her while she hurdled along at better than a 10-mile clip. Presently the sails of the racing yachts began to loom out of the haze, and Judy III was urged to do her prettiest so as to reach the finish before the flyers whose time she was detailed to record. It was a joy ride down along the North shore of old Massachusetts Bay for everybody aboard the Judy III. She tumbled about a bit, but was dry and obedient to the slightest touch on throttle or tiller. A more complete water automobile would be difficult to secure. Nip and tuck proved the race between the despatch boat and the large schooners, for the latter were reaching a bit faster than the Judy III was driving toward the goal. But the breeze flattened, and the speed boat was in ample time to establish the finish line off spar buoy No. 3, at the entrance to Marblehead harbor.

Motor cruisers belonging to the club reached an anchorage long before the largest vessels participating in the cruise were able to enter port, for the afternoon, that opened so auspiciously, ended in a calm. Out again went some of the cruisers to tow the sailors to an anchorage. Some hooked to two or three, auxiliaries passed lines to the out-and-out white-winged yachts, and so the fleet finally succeeded in rounding itself up for the night in the quiet of that beautiful haven midway between Boston and Cape Ann. That first night of the cruise, gladdened by starry skies, will long live for its witchery and the shattering of fetters that for a twelvemonth had bound the majority of men among the crews to the drudgery of city life.

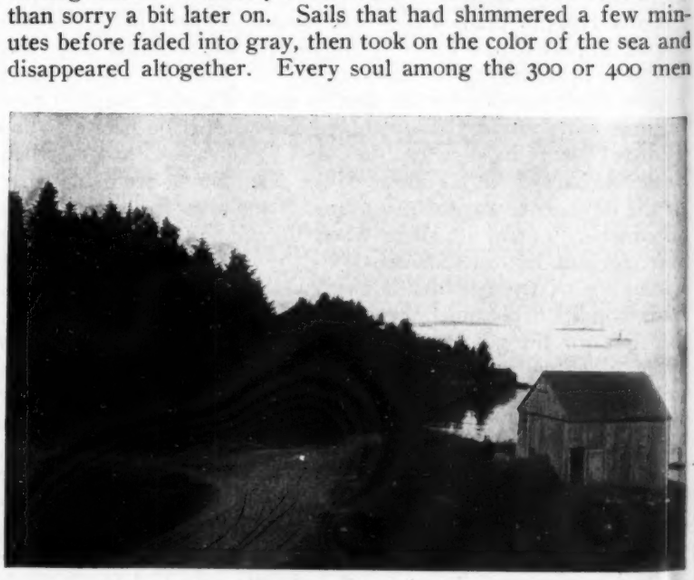
Sunday, the second day of the cruise, opened bright and warm, with only a suspicion of a breeze from a southerly quarter. The start was made at 9 o'clock for Isle of Shoals, distance 34 miles, with anchorage in Gosport Harbor. Motor cruisers immediately got down to business and soon were hull down, only to take the back track when it became apparent that the sail craft would be able to get little better than nowhere unless conditions should change for the better. The run for the motor-propelled craft was thus interrupted, and, a few lively brushes excepted, the early part of the day provided nothing more exhilarating than jogging under half-closed throttles.

Noon had come and gone before the wind put in an appearance, with indications that it would hold. The first faint puff was out of the southeast. Never was a breath of brine more appreciated than this same forerunner of things to come. Some of the yachts were off Thatcher's Island, others had worked up to the Salvages, where the sea was churning itself lazily into creamy froth, and the tripods or triangles that mark these dangerous obstructions seemed strangely out of place on the desolate reef. Presently the whole fleet was in motion and presented a scene of activity worth while witnessing as the cruisers strung themselves out as far as the eye could discern. The rollers began to heave along with broadening shoulders, and the journey across Ipswich Bay, now on in earnest, proved interesting for all hands, excepting, perhaps, the cooks.

Ipswich Bay is regarded as one of the choppiest stretches of water for cruising boats, and coasters, for that matter, immediately north of Cape Cod. Its currents are strong, because of the rivers that pour their volume into it and the tides that sweep into and across this sizeable gulf. With the wind off the land, the commotion is not so very bad; but when the air strikes up a lively gait from the eastward and fog obliterates landmarks, the bay is no place for amateurs, unless they are provided with plenty of nerve, able boats, and an assortment of stout ground tackle.

The Tidy-Adly made a grand-stand play as she drove ahead in the yeasty seas with the committee in chairs on her after deck. Ahead of the Tidy the handsome motor cruiser Zui Zia was keeping pace with the big steel schooner Shiyessa IV, the club's flagship, on which the commodore was making the cruise. This Zui Zia is but three years old, but she has lived much longer than that, if her extensive cruising is taken into consideration. Her name is Chinese for Water Wagon, and she has logged 30,000 miles, been twice to Florida, and not a breakdown, says the boat's skipper, has marred the delights of persistent journeyings.

Squally conditions were brewing in the northwest when the fleet was pretty well up with the Isle of Shoals. Haze thickened the atmosphere, and strict attention to compasses became necessary so that the boats of the squadron might not go wide and fetch up on the fangs of reefs that crop out for miles in the vicinity of the clump of islands. Smaller yachts doused canvas as the sky took on a sinister aspect. The wavering wind showed signs of shifting dead ahead. Thunder growled and boomed its warning. Lightning jabbed its livid bolts down against the mainland from a sky black as pitch, clearly defined above the low-lying haze. A greasy, yellowish hue smeared itself directly overhead, rolling and writhing at great speed toward the sea line. Spinnakers were melting on the large yachts and balloon jibs were quickly stowed. Sailing masters evidently reasoned that it was better to be sure than sorry a bit later on. Sails that had shimmered a few minutes before faded into gray, then took on the color of the sea and disappeared altogether. Every soul among the 300 or 400 men



A BIT OF CASCO BAY, MAINE.

comprising the working force of the fleet held himself ready for instant action.

Not a motor cruiser fled for shelter in an effort to escape the weight of the imminent blow. These boats were kept in the midst of the sail craft, where they could be of assistance should gear be wrecked, and the sportsmanlike spirit displayed by the "gasoleners" at this time proved but an incident of their attitude of helpfulness throughout the cruise. Within a few minutes the wind flopped almost completely round the compass. The sea became sloppy, and some of the little boats were pooped by the cobblers that crashed against their transoms. The tiny Judy III was lively as a cricket as she skipped across the crests. Auxiliaries snugged down to easy sail, and showed no indication of stealing away toward shelter. Men with motors to back them were quickly prepared for the onslaught; they banked on reliability of power plants, and this ugly aspect of sky and sea was but repetition of the old, old story of voyaging across wet spots.

A crash or two, accompanied by sharp lightning; a hot breath from the mainland that seared in its sharp contrast to the delicious coolness of a few minutes before; a strong puff out of the northeast, accompanied by fog that sent watches on deck into sweaters and oilers; yachts heeling and driving as they caught the weight of the blast—that was all the ominous heavens were able to pour forth to blight the day's run. Sunshine tinged yielding cloud masses that parted and drifted into nothingness. Reluctant fog was dissipated, the wind piped again from the southeast, steady as a clock and of about 10 miles velocity. The motherly Tidy-Adly suzzled hither and yon right merrily and spoke the scattered units as they came romping up, their crews sending aloft light sails a brief time before so hastily doused during the aerial bombardment. Not a boat had suffered damage, and the squall was quickly forgotten with the coming of such ideal conditions for a lively finish.

Gosport Harbor was not, however, to be the night's anchorage, for the excellent reason that Little Harbor, N. H., only six miles beyond the Isle of Shoals, would provide a better start for the following day. The boats got word as it was passed along, and the miles were lopped off at a rattling pace to the hole in the land where a rambling hostelry stands impressively on a hilltop.

Monday's dawn brought a northwester pumped out of mighty bellows and freighted with mountain chill. Everybody predicted the wind would increase in velocity and furnish plenty of excitement for the run along the granite coast of the Pine Tree State to Cape Porpoise harbor. A few rugged lads went overside for a bath, and shivered throughout the drying process. Great wads of grass clung to cables, for tide had kept busy while crew dreamed. Up went the cruise streamers for another day, and the bunting snapped and frayed and tried to stand on headings. The flagship Shiyessa stood bolt upright on a shoal spot over which she had swung and got caught with the ebbing tide. Her convoy, the Zui Zia, made a brave effort to haul the schooner free; but there the flagship squatted temporarily, with several feet of her bottom paint exposed. Farther up the harbor was the Alkyris, completely stranded, with her crew of Newburyporters complacently grooming the yacht's underbody to kill time while waiting for breakfast to be prepared. Other craft had grounded, too, and the motor cruisers got busy and released them, in order that the start might not be delayed.

The start was made at 9 a. m., and some of the smaller boats were forced to tie in reefs. It was a broad reach nearly all the distance to Cape Porpoise, a matter of about 24 miles, and the fleet covered the stretch in record time. There were disasters to some of the sailers as the breeze took on strength and whooped out of the rivers and coves, one losing her rudder, another carrying away her topmast, and minor mishaps all along the line. Like a steamboat the Tidy-Adly trudged down the coast, while the Judy III, which had gone ahead at full speed with the chairman of the regatta committee aboard, was jumping at a great rate off the entrance to Cape Porpoise harbor when the first of the racers came up to the whistler. The finish was between the Judy III and Old Prince Bell Buoy in water feather white.

Cape Porpoise harbor has a narrow entrance beset by ledges, and is much in favor among fishermen who seek a haven in troublous winds. Some of the best of the motor fishing fleet hail from the port and engage in the trade with T Wharf, Boston. Considerable dredging has given the place a ditch of deep water and more or less protection when high seas pound the outlying reefs. Most prominent of all at Cape Porpoise harbor is the brand of mosquitoes. Big as tiny birds, insistent and murderous, these insects are the bane of the place and a cinch for the manufacturers of an oil known as citronella. Stores keep in stock a dozen different kinds of dope guaranteed to drive mosquitoes a mile without a stop. Summer girls smear their hands and faces with the stuff to preserve their skin from pimpling before they promenade at dusk. The song of these mosquitoes is a low droning chant, with allegros approaching the filing of many saws.

The motor craft towed the sail yachts out to Old Prince Bell Buoy at about 9 o'clock the next day, as not a breath of wind ruffled the sea. Gradually the breeze picked up, giving a close reach, and, shortly after noon, all the boats had placed Old Anthony's whistling buoy astern. While the Tidy-Adly was waiting off Cushing's Island bell buoy for some of the slower boats to finish, two Hampton boats, equipped with motors, came in from sea and headed directly for the Tidy, which had the Judy III astern at the end of a short length of painter. The Hamptons, big and able, were steering rather erratically, their crews, of two each, bending, as if engaged in meditation, at bow and stern. It didn't require much time for the Hamptons to come into close

HALFWAY ROCK, CAPE ELIZABETH.

quarters, and, to the amazement of the Tidy's crew and the committee, it was seen that the fishermen were apparently sound asleep. The Judy III's engineer let out a yell like a loon, the Tidy's whistle screeched, and just in the nick of time up popped the heads of the fishers when the leading boat was about to ram the Tidy's waist. That boat luckily sheered away with less than a fathom to spare, and the one following also succeeded in averting collision.

The fleet proceeded to an anchorage off the Portland Yacht Club, in the upper harbor, where the latchstring had been left out and door keys thrown away in anticipation of the visit. Bountiful was the hospitality of the entertainers, and a better, cleaner, more enthusiastic lot of web-feet would be difficult to find anywhere along the Atlantic seaboard.

Thursday found the fleet on the wing for Winnegance Bay, 24 miles from Portland. The start was early, from Cushing's Island bell buoy. Charming indeed is this passage from Portland, unfolding, as it does, an ever-changing picture of sea, shore and lofty land. Winnegance Bay is one of the most picturesque places imaginable, with its woodlands mirrored in quiet water, its granite buttresses riven by Time's assaults. Beyond the bay is the New Meadows River, whither the club journeyed that evening in special steamboats to the inn for dinner.

Next day the fleet started for Boothbay Harbor under conditions that could not have been fairer had they been custom-made. The boys had mentioned many times since the week opened that the weather was of typical Boston Yacht Club sort, and, barring a few soft spots and lively squalls thrown in to add leaven to the outing, things were just about as they should be. Everyone who has cruised to Boothbay Harbor understands the delights unfolded by this, the last day of the club's itinerary as a squadron. The starting line was between the Tidy-Adly and a flag mark, and the finish line between the same Tidy-Adly and Black Spar Buoy No. 1, off Burnt Coat Island. The distance was about 25 miles, and the anchorage in Boothbay Harbor only a short ways beyond.

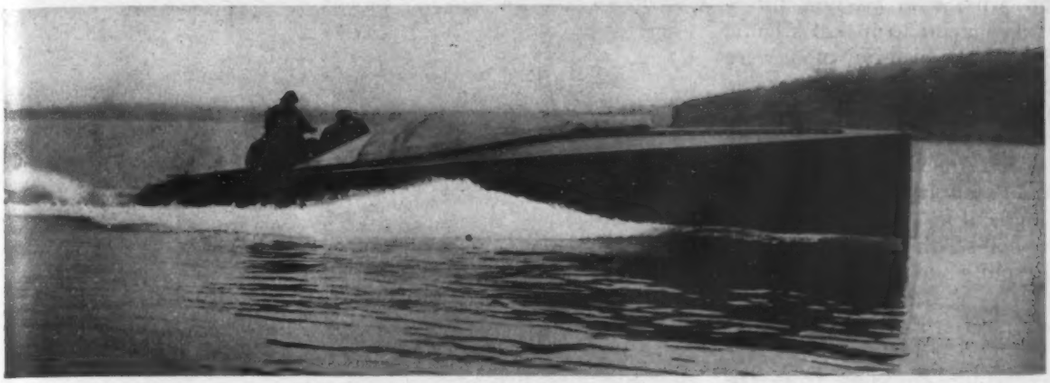
Early on Saturday a number of the motor craft set courses back to Marblehead and Boston and Hull, while others kept on to Rockland and Camden. The fleet soon became scattered, and by Sunday only a handful of cruisers remained at Boothbay Harbor. Amateur crews, in many instances, found it imperative to be back in Boston early Monday to resume work from which they had found brief respite. The Tidy-Adly, busy to the end with her ministrations, rounded up a number of sailing yachts wallowing in the doldrums off Eastern Point and towed them to an anchorage, while the tiny Judy III, which had jogged across with the Tidy, had negotiated the rather sizeable mileage without a protesting lisp from her busy motor and was fresh as a daisy at the expiration of her charter. So well did these erstwhile despised "gasoleners" perform that their place in all future cruises of the club is assured.

The Month in Yachting

BY chance I ran across a bunch of motor-boat experts, who are more or less closely concerned in the plans for the defense of the Harmsworth Cup, in an uptown office the other day. They talked of good news concerning the prospective defense of the trophy, and they talked, also, of bad news as concerns the challengers. By bad news I mean the "flyer" the Maple Leaf took over a measured mile in England recently. She did it—but let that wait a moment. First of all be it said that, whereas last year everyone waited until April and then blew in their money on futile defenders, this year preparations have been going on since last November, the result being that, whatever the ultimate result of the international contest next August, the charge of unpreparedness may not be brought against us.

I heard the best of reports concerning six of the defenders, and at least one of them—the new Dixie—will make the best that England can send against us hustle to show what the wake of a swift boat looks like. Her hull is the ultimate mark of Clinton Crane's genius—which is saying a lot—and, in addition to old Dixie's engine, she will have a brand-new one, the two aggregating some 500 H. P. These are expected to drive her over a mile course at a rate of about 50 knots an hour. I hope so, for—to come back to Maple Leaf—the new British challenger in her late shop test scooted across the waves at the rate of something over 49 knots—57 land miles an hour—which is some speed, believe us. This was not the official trial. What she will do in that Heaven alone knows. But at least with a 50-knot defender we

THE DUKE OF WESTMINSTER'S BRUNHILDE. A SAUNDERS-FAUBER HYDROPLANE WITH 760-HORSEPOWER ENGINES.



BRUNHILDE ON A TRIAL SPIN. HER HYDROPLANE CONSTRUCTION IS HARDLY APPARENT.

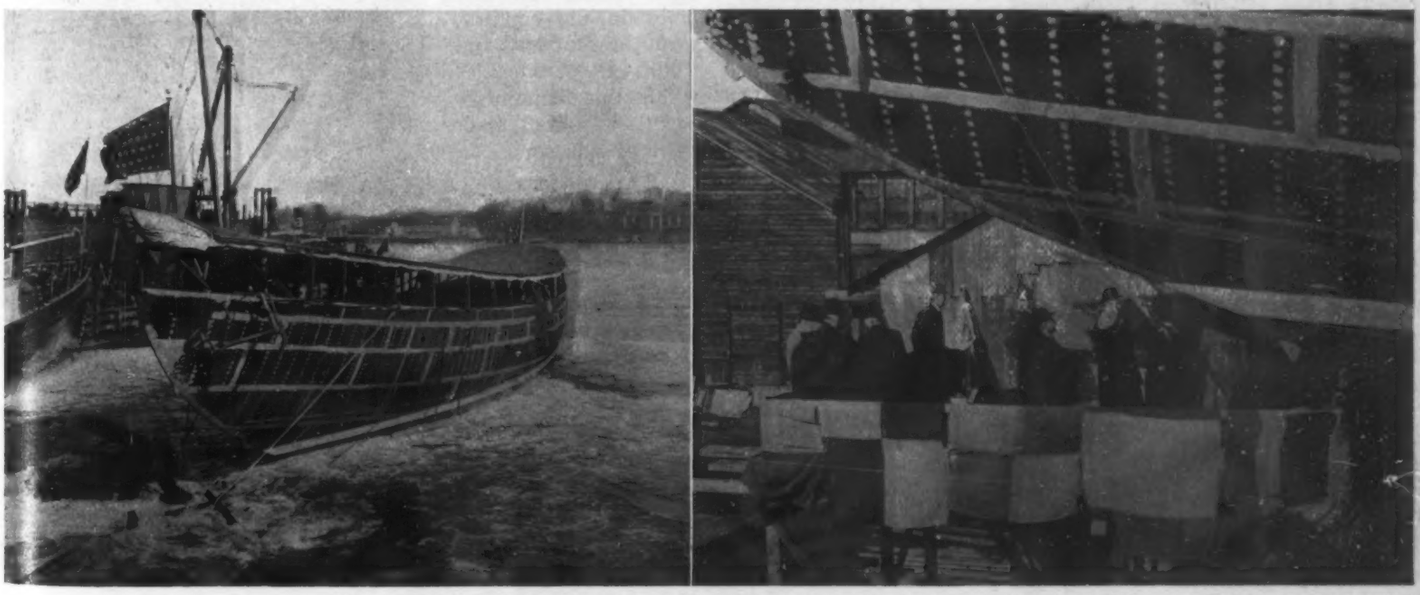
shall have firm grounds for hope. In any event, Huntington Bay should see some speeding this year; and if we keep the cup here under such a classy test, why, all the more honor for us—U. S. See!

It was unfortunate that the Duke of Westminster's new 15-metre Brunhilde could not have been gotten in shape and properly tuned up for the Monaco races, as a trial between this wonderful boat and Maple Leaf III would be highly interesting and instructive. The Brunhilde was successfully launched from the yard of Messrs. S. E. Saunders the 23d of February, and was built for the Duke of Westminster with a view to winning, for the third time, the *Coupe des Nations* at Monte Carlo, which he twice won with Ursula. A speed of over 50 miles has been looked for in this boat, which is a Saunders-Fauber hydroplane, and powered with the two 12-cylinder Woolsey engines developing 760 horsepower which were for two years installed in Ursula. She is a big boat, 10 feet longer than Pioneer, and a much better looking boat above the waterline than that famous craft. She has a pronounced flare forward, and, when at rest on the water, it would be hard to tell her from a displacement boat.

I understand that the flag officers of the Larchmont Yacht Club, under whom Charley Tower has served as regatta committeeman, are to present him with some substantial recognition of his services in the interest of club racing. They will do well. Much of the success of Larchmont regattas has been due, not only to the handling of races, but primarily to his ability to insure representative entries, which in recent years culminated in putting Larchmont at the fore as a racing organization. Larchmont has won a whole lot of fame through its Rocking Chair fleet, but its racing members have done even more substantial service.

How many remember that day in 1873 when, at City Island, was launched William Waldorf Astor's two-masted schooner yacht Atalanta? Newspapers of the day spoke of her as the most palatial yacht afloat, and at the time, with her furnishings, she was valued at $50,000. In those days Mr. Astor was an enthusiastic yachtsman, and he had her at ports many and varied. She was the cynosure of all eyes at New York Yacht Club meets and cruises, and was the scene of princely entertainments. In about 1875 Mr. Astor tired of the sport and sold her. Since then she passed through a dozen hands, and at length she landed high and dry at Boothbay Harbor. The other day Capt, Kent, of Boothbay, purchased her, and is now having her converted into a gasolene supply boat. William Waldorf Astor was twenty-five years old when he had the boat built by David Carll, and he started out to be quite a sportsman. But he grew tired, and, renouncing his American citizenship, became a British subject. Now he is sitting in the House of Commons. "To what base uses may we return!" Of course, I am speaking of the fine old Atalanta now, with her mahogany fittings, and a' that, and a' that. Once she supplied champagne to the New York Yacht Club fleet; now, gasolene to fishing craft! Ha! ha!

While speaking of the New York Yacht Club it is that I am happily reminded that we are to have a resumption of two fine races this year. I refer to the Cape May and Brenton's Reef challenge cups. Both cups are now held by Wilson Marshall's trans-Atlantic champion Atlantic, and the challenger is that fine



LAUNCHING OF MR. ROBERT E. TOD'S NEW KARINA.

deep-sea sportsman, Robert E. Tod, who, with his new three-masted schooner Karina, may be relied upon to make Atlantic look well to her laurels. In 1885 these historic cups were raced for in these waters when Sir Richard Sutton, after his Genesta had been defeated by Puritan in the America's Cup races, challenged for the trophies, and was accommodated by Caldwell H. Colt, of the Dauntless. The American defender was unsuccessful, and so the trophies went to England. The Brenton Reef Cup was brought back from England in 1893 by the Navahoe, and was later won by Mr. Marshall's Atlantic in a race between that boat and the schooners Resolute and Endymion. The Cape May Cup was returned to the N. Y. Y. C. by England after there seemed no further chance for a race on the other side, and was won in 1904 by Atlantic.

The new Tod schooner was successfully launched from the yards of the builders on April 13, and the photographs of her which we reproduce here show her to be a shapely, able-looking craft, though, naturally, not at that time down to her lines.

The regatta of the Western Power Boat Association at Peoria, under the auspices of the Illinois Valley Yacht Club, will undoubtedly be the biggest event in the West this year, and will probably eclipse in interest any power boat event in this country, excepting the race for the British International Trophy, by reason of the number of top-notch boats that will appear in the 40-foot class. Entries have already been received for this event of a number of Eastern boats that are being built especially for the International Cup race. Here is a list of eleven owners of 40-footers that have entered their boats, five of them being built for the International Cup:

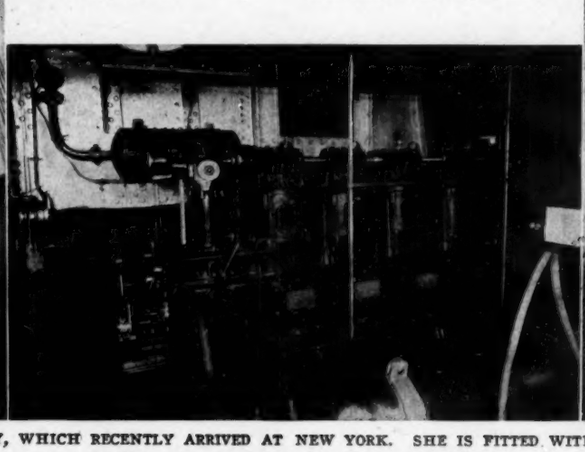
Commodore F. K. Burnham, New York City;
J. Stuart Blackton, New York City;
W. F. Harris, Newark, N. J.;
Albert E. Smith, New York City;
Pierce-Budd Company, Bay City, Mich.;
J. W. Whitlock, Rising Sun, Ind.;
Carl G. Fisher, Indianapolis, Ind.;
Ed. Corsepius, Fort Madison, Ia.;
Ed. C. Koenig, St. Louis, Mo.;
Commodore W. E. Hughey, Bellevue, Ia.;
Commodore Jas. A. Pugh, Chicago, Ill.

The date of this event has been changed from August 8 and 9 to July 25 and 26, so as not to conflict with the race for the Gold Challenge Cup on the St. Lawrence.

A BROADSIDE VIEW OF KARINA.

I am glad to hear that talk of reviving the race for the Herbst Cup on Lake Michigan is amounting to something. This trophy was presented to the Chicago Yacht Club by a citizen of Milwaukee six or seven years ago, and the races from the Cream City to the Windy Village excited considerable comment. The racing was dropped for a while and the cup apparently forgotten, but now the plan is to revive it this season. One of the conditions is that the race either starts or finishes at Milwaukee. I hope it goes through, if it has not already been scheduled. For one thing, it might tone up the sport in Milwaukee, and that would be a fine thing, as there is not a place in the country better adapted for the sport than that city—and, I might add, hardly a place where so little general interest is taken in it.

It is to be hoped that the suggestion of Morris M. Whitaker, secretary of the American Power Boat Association, with regard to distinguishing flags for gasolene stations will be followed. Mr. Whitaker believes that if the matter were taken up by individuals and clubs a great convenience will have been put into effect. His idea is that above all gasolene supply stations shall be flown a rectangular white flag with a black cross, the arms running horizontally and vertically. Any motor-boatman will appreciate the value of this plan, and it is to be hoped that pressure will be brought to bear to this end among all the clubs in the country. Both the Standard and Texas Oil Companies will fly this distinguishing flag from all their stations this summer.



FOUR-MASTED FRENCH STEEL BARK QUIVELLY, WHICH RECENTLY ARRIVED AT NEW YORK. SHE IS FITTED WITH TWO 300-HORSEPOWER OIL-BURNING DIESEL ENGINES, TURNING TWIN SCREWS, WHICH HAVE PROVED VERY SUCCESSFUL FOR AUXILIARY POWER.

Operation of Two-Cycle Motors for Greatest Power

By E. W. ROBERTS, M. E.

IN order that the reader will be certain to understand what is to follow on this subject of getting greater power from two-cycle motors, I will briefly describe the principles of the two-stroke cycle, from which the motor derives its name. This will enable him to understand better the various technical terms that I shall be compelled to use.

The explosive force of a mixture of gasolene, vapor and air, being the source of power, it must first be drawn into the cylinder, confined by closing all exits, and ignited. After the force of the explosion is spent in driving the piston, and, through it, turning the shaft, the burned gases must be discharged and a fresh mixture drawn in, to be confined, ignited and discharged in its turn. As greater efficiency is obtained by compressing the mixture before ignition, and as the efficiency is greater as the compression is increased, the mixture is compressed to as high a point as can be employed without igniting it by the heat of the compression.

In order to get the mixture into the engine cylinder the engine must first act as an air pump, drawing air through the carburetor to pick up the right proportion of gasolene. In the four-stroke cycle of the four-cycle motor the engine cylinder itself is the air pump, the piston on its outward stroke drawing the mixture directly into the engine cylinder from the carburetor, and after the pumping stroke is completed the passage leading to the carburetor is closed and the piston compresses the mixture on the succeeding inward stroke.

In the two-cycle motor the compartment below the piston, known as the base or crankcase, is enclosed and made air-tight, and is used as the air pump. The passage from the carburetor, therefore, leads to the base instead of to the cylinder. The inward stroke of the piston is, in this case, the pumping stroke, which takes place below the piston while the upper end of the piston is compressing the charge in the cylinder. Thus it will be seen that pumping stroke and the compression stroke are taking place at one and the same time during the same revolution of the crankshaft, and do not require two revolutions, as in the four-cycle type.

There are two methods of closing the passage to the carburetor in a two-cycle motor. One is by means of an ordinary check valve operating on the same principle as the foot valve in a common pump, in which case the passage leads directly to the base proper, and the other by cutting an opening or port in the wall of the cylinder, which is uncovered by the lower edge of the piston just before it reaches the top of the stroke and closed again just after the piston has started downward. The first method is that used by what is known as the "Two-port" and the latter by the "Three-port" motor. The operation of these two types of two-cycle motors is shown fully by the diagrams and explained by the notes below them. By studying these diagrams closely, you will have no difficulty in understanding them.

Of these motors the writer prefers the three-port; first, on account of its greater simplicity, and, second, because I have found that it gives the best results at the higher speeds, or above 600 r. p. m.

In the operation of the two-cycle, in order to secure the maximum power output possible, the motor should be run at the highest speed at which it is practical to operate a propeller in the type of boat in which it is used, so as to get into the cylinder the greatest possible amount of mixture, and also to secure the greatest possible amount of power out of one cylinderful.

These are the primary considerations, though there are several subsidiary ones that have an important bearing on the final result. It is a mistaken idea to assume that, because a motor will give 10 H. P. at 500 r. p. m., it will give 20 H. P. at 1,000 r. p. m. It is also wrong to assume that, because a motor of one make will give 10 H. P., another motor of the same bore and stroke will give the same horsepower at the same speed.

In the first place, I will consider the points to be looked after in order to secure in a two-cycle motor the greatest amount of power for each charge. Assuming that the cylinder is completely filled at each stroke, the following are the essentials:

A mixture in which the proportions of gasolene and air are such as to give the greatest explosive force;

Ignition at such a point in the stroke as will give the greatest mean pressure during the working or expansion stroke;

Compression to the highest point possible without igniting the mixture by the heat of compression before the proper time;

Compression without loss of gases by the piston, due to leaks;

The opening and closing of the intake and exhaust ports at such points as will prevent loss of mean pressure.

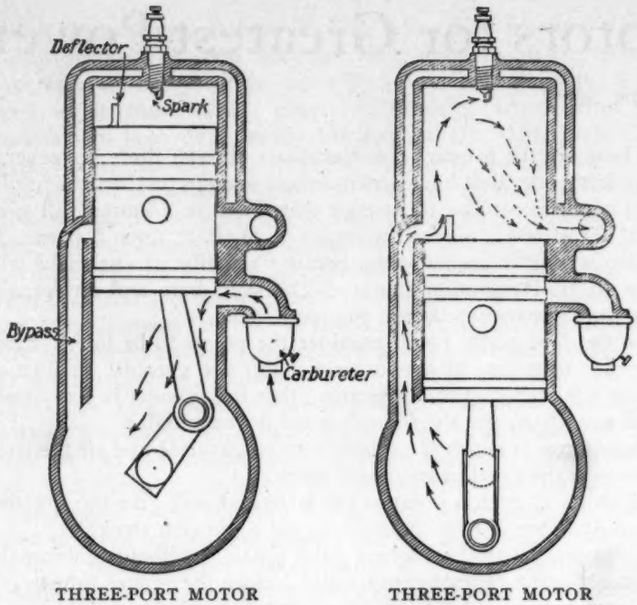
Summing up these points, they resolve themselves into a means of securing the greatest possible mean pressure from one charge of mixture.

To secure the greatest possible amount of mixture in the cylinder for each revolution of the shaft there must be, first, no choking of the air passages; second, a sufficiently high vacuum to ensure drawing in a full charge to the base; and, third, no back draft to allow the mixture to escape after entering the base.

To operate the motor at the highest practical propeller speed it must have air passages, etc., as per the last paragraph, designed to give a full charge at this speed and the lightest practical reciprocating parts. Taking up these items seriatum, I will show how they may be secured, and just what points should be watched carefully in each case when operating and adjusting the motor.

To secure a mixture of the greatest possible explosive force, it must be a little richer in gasolene vapor than for the greatest economy, and the needle valve of the carburetor should be carefully adjusted, while watching the speed indicator, to give the greatest speed with the motor driving the boat, and not while running free or tied to the dock. The mixture should be one of thoroughly vaporized gasolene and air, and not air with gasolene held in suspension in the form of a finely divided spray or mist.

When the gasolene leaves the carburetor just after it has been drawn into the air current it is generally cold, as the sudden change of the greater part of the gasolene to vapor has a refrigerating effect. It has, therefore, a tendency to condense again into liquid, and even should it not do so the mixture may not be even in its proportions, in various parts, some parts of the charge being richer in gasolene than others. In order to overcome this the mixture may be passed over a series of baffle plates, such as screens, foraminous plates, or even a coil of wire on the inside of the intake pipe. The writer has secured excellent results on these lines by means of a honeycomb structure in the transfer port or bypass, through which the gasolene vapor and air must pass when going from the base to the cylinder. This not only breaks up the cohesion of the atoms held in suspension by causing the mixture to pass over a surface of large area, but slightly raises the temperature and overcomes the chilling effect of the carburetor. It has the further advantage of positively preventing explosions in the base.



THREE-PORT MOTOR

Piston nearing top of stroke; port uncovered by lower end of piston; mixture entering base from carburetor; explosion taking place above piston; both ports leading to cylinder closed.

THREE-PORT MOTOR

Piston at bottom of stroke; burned gas passing through exhaust port (dotted arrows), fresh mixture entering cylinder from base (full arrows).

Ignition at the proper point in the stroke is a matter for trial just in the same way as the mixture, and should be made with the motor operating the boat at its fullest speed. The higher the speed of the motor with a full mixture, the greater should be the distance from the top of the stroke, that ignition should take place. With the same charge and the same compression, the time that is required after the spark ignites that part of the mixture with which it is in contact until the entire body of the charge is fired is the same. This time is called the period of inflamation. The distance over which the piston travels during the period of inflamation increases with the speed of the motor, and, therefore, the point of ignition should be farther in *advance* of the top of the stroke as the speed increases.

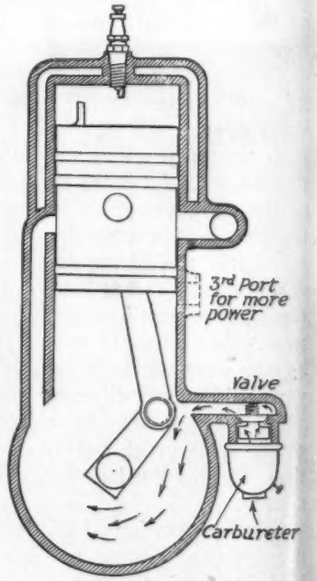
The reader should note that when the motor is throttled down the mixture is weakened, and the period of inflamation for a weak mixture is longer than for a rich one. Therefore, when throttled, the motor will stand more spark advance than when the throttle is wide open.

The compression that may be used without the mixture igniting before the proper time (pre-igniting) depends upon the speed. Remembering that the period of inflamation is constant with a full mixture, that the pressure increases as the piston nears the end of the compression stroke, and that the mixture takes fire just so soon as a certain pressure is reached, it is simply a question of ignition from the spark being first. For intimate mixtures and thoroughly vaporized gasolene the highest pressure that may be safely used with the ordinary gasolenes of commerce lies between 70 and 80 pounds. If there is no special vaporizing device or preheating of the mixture, as in the honeycomb device referred to above, 85 to 90 pounds may be used for speeds of from 750 to 900 r. p. m. This refers to compression in pounds gauge obtained when turning the motor over slowly by hand, and not by means of the indicator with the motor operating to speed. As the speed of operation is increased to above 1,000 r. p. m., the compression may be increased to from 90 to 100 pounds. Such high compression as the latter should be employed with caution, and the motor cylinder must be most effectively cooled to ensure success with it. Too high compression or too great spark advance is a detriment, and it is best to remain on the safe side always. Either one is indicated by knocking in the motor—not a heavy pound, as some imagine, but a sharp click, much as if a light hammer were tapping on the inside of the motor.

Compression without loss of gases by the piston is a question of construction. The cylinder should be perfectly cylindrical, free from scoring, especially in the direction of piston travel, perfectly straight and smooth. The piston should be a good fit to cylinder, smooth and true. The rings should have good spring, and should bear against the bore of the cylinder entirely around their periphery and fit well sideways in their grooves. A good practice is to make the piston slightly smaller at the closed end and so that it does not touch the cylinder at this point. The rings should be of exceedingly close-grained iron, and preferably *turned* smoothly on the periphery rather than ground, as they are more easily made to fit by this method. A temporary aid to a leaky piston is excess of oil. Very often a good set of rings will overcome the leaks.

Opening and closing of the exhaust and intake ports at the proper time for best effect is a matter of experience and experiment. The exhaust port must open sufficiently in advance of the port leading to the by-pass to ensure the fall of the pressure within the cylinder below the pressure in the base, and at the same time not so early that a part of the fresh charge may escape before it is closed by the upstroke of the piston. The area must be sufficient to bring the average speed of the escaping gas down to 80 feet per second. It should be noted that the exhaust port of a two-cycle is open during a much shorter period of the crank travel than in a four-cycle. The area of the port from the by-pass and that of the by-pass itself may be constricted to some extent on account of the pressure in the base. The exact time or angle of opening of these ports cannot be given by any fixed rule, as it varies with the size of the motor and the compression in the base.

To secure the greatest possible amount of mixture in the cylinder at each charge, the speed of piston travel and the area of the cylinder must both be considered. The average speed of the entering gases should not exceed 100 feet per second. Usually the area of the intake and the size of the carburetor should be twice that required for a four-cycle motor of the same bore and stroke. For example, on a motor of 4½-inch bore by 5-inch stroke, designed to operate at 1,000 r. p. m., a 2-inch carburetor and intake passages should be used. For a light racer, a good scheme is to use a small carburetor with an auxiliary air shutter adjusted by hand. This is, however, something of a makeshift, as it requires hand regulation when speeding up or down. With carburetors employing a spring-controlled air valve, more air can be secured by removing this valve and choking the valve opening for starting. This is accomplished at a sacrifice of regulation at low speed.



TWO-PORT MOTOR

Air entering base from carburetor through check valve. Air enters during entire up stroke of piston.

The ports of a three-port motor which lead to the base should be so designed that, for a four-cylinder motor operating on one carburetor, there will be no two ports open at the same time. To

operate at high speed with a smaller carburetor and intake than called for by the rules above noted, the ports may be wider in the direction of the piston travel; but if they lap, it will be necessary to use two intake pipes and two carburetors. The intake port should always close sufficiently early to avoid the mixture being blown back through the carburetor by the compression in the base, with consequent loss of both air and fuel. This point is what determines the position of the lower edge of the port leading to the base, and this position may be lower as the speed of the engine increases. The writer has found that in four-cylinders fitted with one carburetor, no matter how carefully designed, slightly more power may be obtained by the use of two cabruretors, one to each pair of cylinders. For ordinary operation the single carburetor is better.

Combined two- and three-port motors, called by some "four-port" motors, are merely another method of securing sufficient port area with small carburetors and small intake pipes. A two-port motor may be increased in speed and power at high speed by cutting a port through the cylinder wall just like that in a three-port motor. This should be closed when starting the motor and opened when the motor comes up to speed. The needle valve on the carburetor should be given a little more opening when the third port is opened.

A sufficiently high vacuum in the base may ordinarily be secured by the designer if he is careful to have the inner surface of the base compartment follow closely the path of the moving parts, using a minimum of clearance. Usually a quarter-inch is none too much when following the circular path of the rod, while as little as ⅛ inch may be used at sides by exercising care.

"Filling blocks," or disks fastened to the crank arms, are used by some to reduce this clearance, but I have found them more bother than they are worth. I have taken them off in several instances and found no difference in the operation of the motor after they were removed. For moderate speeds, a base pressure of from four to five pounds is sufficient, and for high speeds eight pounds. These pressures can be secured without filling blocks.

My advice to anyone who wishes to get out of his motor all the speed and power that there is in it is to practice adjustments frequently. But never make two adjustments at the same time when they are made for the purpose of trial, as one may cloud the effect of the other. For example, when adjusting the spark lever, leave the carburetor alone, and *vice versa*.

Remember that a hot spark shortens the period of inflamation, and, therefore, with a hot spark less advance is needed; as, for example, when a magneto is used. But a hot spark is not everything, and synchronous ignition on a multiple-cylinder motor means more than hot sparks. If the ignition does not occur at the same point in the stroke in each cylinder it throws the whole engine out of tune, and the full power cannot be obtained. Beware of poorly spaced timers, or distributors in which the spark will jump to the wrong spark plug and fire one cylinder by the spark intended for another. This is known as "bucking," and it can be overcome with a distributor having a grounding contact leading the ignition contact. A spark from a non-vibrator coil gives less trouble in a distributor than one from a vibrator coil.

Study your motor carefully and learn its peculiarities. Every motor has something that needs a slightly different adjustment or manipulation than another. You will find it surprising how much better the motor will run after you are familiar with it.

I believe that every motor that is used for racing should be equipped with some good form of speedometer—not one to show how fast the boat is going, but the speed of the engine in revolutions per minute. It is all very well to judge of the speed of the motor by sound or "feel," but the speedometer will save all guesswork and call attention at once to the slightest diminution of speed.

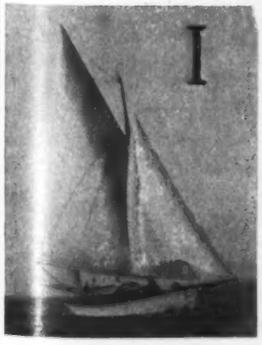
Always make your preparations for a race with the greatest care. Go carefully over the battery, and if there is the slightest doubt about it put in a fresh one. In fact, you should use two batteries, both connected up to a throw-switch, so that you can turn on the spare battery instantly. Be sure that your gasolene tank and piping is absolutely clean, and carefully strain your gasolene. The smallest particle of dirt may stop its flow. Not only see that your oiler is full, but that you have an ample supply on board for the race. Mixing oil with the gasolene in the proportion of one pint of oil to four gallons of gasolene ensures better and surer oiling for the connecting-rod and piston than the best oiler made. The oil and gasolene should be well stirred together before being placed in the tank. Go carefully over your water-circulation, clean the pipes carefully, and be sure that the intake on the bottom of the boat is clear. If you can get at your water-jacket, see that it has no deposit of mud or other foreign matter. Examine the pump, and see if it needs repacking and that the valves are in good shape. If a gear or centrifugal pump, clean thoroughly.

In the race the engineer should watch the motor carefully, and even between races should keep the motor tuned to the highest pitch. Remember that more races are lost by breakdowns, many of them due to the most trifling causes, than by lack of speed, and that eternal vigilance is the price of victory.

Southward Under Power and Sail by the Inside Route

PART IV—FROM ST. AUGUSTINE TO NEW ORLEANS

By A. M. FARRELL



IT was on a Sunday that we reached St. Augustine, so we had to look a little respectable when we went ashore. While here we met two men who had just come from Key West by the inside route and said that it took them six weeks. They advised us to take a pilot, if we were strangers and wanted to get through in less time than it took them. As they seemed to be fellows who would not say this unless they meant it, we began to feel uneasy about what was ahead of us, for we did not want to get hung up around the Keys for weeks. Making inquiries, we were told to see Capt. Gleason, who was the engineer for the Florida East Coast Railway, and was well posted on the route, as he had charge of the canal improvements. We called on him that evening, and he certainly gave us a lot of valuable information, marking off our charts where we had to be particularly careful, and where gasolene was obtainable.

We were not through with Captain Gleason until late, and, it being Sunday, we were unable to get our necessary stores that night. Before turning in we began to make up a list of stores we had to have before our departure, and after it amounted to about $20 we concluded that we did not have sufficient funds for them and to fill the tank with oil, for the latter always killed a five spot. We had nothing but New York exchange, and, knowing no one to identify us, we were wondering how we would make out. Going ashore next morning in our yachting clothes (which was a mistake), we had one of the banks turn us down on our

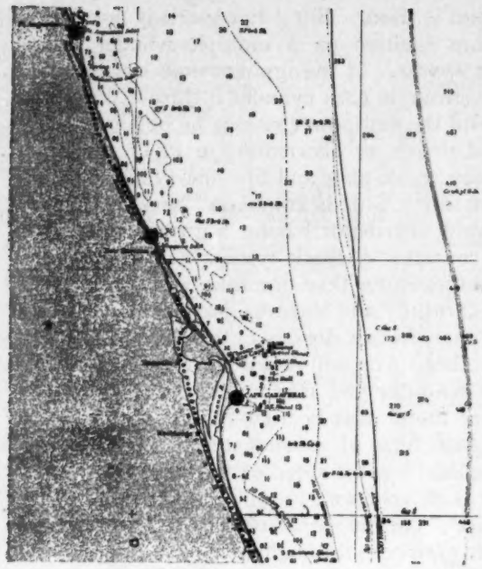


CHART OF FLORIDA EAST COAST.

appearance, and it was only by the skin of our teeth that we pulled through at the other bank. We then purchased our stores and oil and were soon under way again.

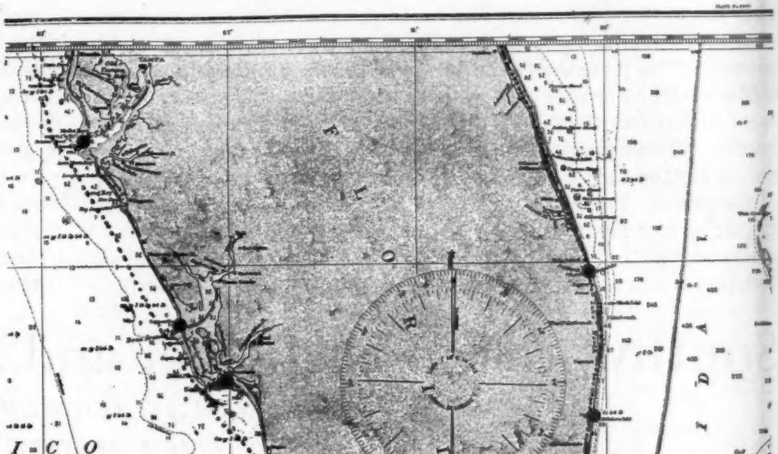
We went about five miles from St. Augustine on the Matanzas River, being guided by hand beacons. We came across some hands that had been turned around and were pointing in the opposite direction, the result of boats running into them. However, Captain Gleason had told us of these reversed hands, and had made notations of them on our charts, so we had no trouble. We soon came in sight of the old Spanish fort at the mouth of Matanzas Inlet and were discussing its history, with the result that we got out of the channel and were soon hard aground. We did not want to get overboard, so took a pair of oars and tried to shove the bow around, but were unsuccessful. The tide was falling, and after a short time we concluded to wait for high water to float her again. About dark there was not a drop of water within 50 feet of us. This grounding happened very opportunely, for we took advantage of it to fix the stuffing-box, which was leaking badly, as we had discovered a short time before. Late in the evening the tide came up, and about midnight we anchored in the channel for the balance of the night.

We reached Matanzas Inlet early the next day, and soon after we were in the new canal. Here there is an average of about 6 feet of water, and we had 15 miles of it before reaching Halifax Creek, which led into the Halifax River. You cannot do any sailing in this river unless you have a favorable wind, as there are many narrow channels, and in the middle of the river there is but 5 feet of water. Ormond was the next town we reached. Here we passed through a drawbridge, and a few miles beyond was Datona, where we found three bridges, about a mile apart. We were still in the Halifax River, and, while it is half a mile wide, one must follow the hand beacons to avoid striking. These beacons are not shown on the charts, because the Canal Company has not yet completed its work of making this route navigable; but I presume it will only be a short time before new charts are issued showing channels and beacons.

We managed to go through the majority of these channels all right, because we had everything marked off on our charts, due to the information received from Captain Gleason. When we reached Port Orange, 5 miles from Datona, we had another drawbridge to pass, and then the river becomes very narrow and crooked until you reach Mosquito Inlet, which passes into the Hillsboro River, 3 miles from New Smyrna, the next place where gasolene may be obtained. It did not take us long to reach there, as there was a strong tide coming in from Mosquito Inlet. After tying up to the wharf and filling our gasolene tanks, we were off again, thinking we could reach Mosquito Lagoon before dark. Going but a short distance we came to a reversed hand beacon which had evidently been overlooked by Captain Gleason, and we fetched up with jigger and jib set and the engine working. We lowered the sails, and, taking soundings, found out we were on an oyster bed. Jumping overboard, we managed to get under way again within a few minutes, and went as far as Eldora, where we stopped for the night.

Passing through Mosquito Lagoon early the next day, we soon reached Clifton. Here there is a small cut that leads into the Indian River. At the end of the cut is what is called Duck Roost Cove, and while the ducks are wild in name they are, in reality, tame, as they were not frightened by our passing among them, merely swimming to the banks. We were now in the Indian River, and, having a favorable wind, all sails were set and we were moving smoothly. Passing Black Point and Titusville, we soon reached Cocoa, and had good sailing until we came to Grant's Farm Island. Before reaching this island is a channel which forms a semicircle through which we could not sail, having a head wind, and the passage being very narrow. We could only use our engine against a strong tide, our progress being slow.

Navigation was fairly good until we reached Jupiter Inlet, where we had a little trouble before reaching Lake Worth Creek; but we came through this creek when the water was low, touching and scraping bottom several times. Then there was about 10 miles in the canal, which brought us to Lake Worth. As we entered the lake we had a time of it. Captain Gleason had told us that we would certainly strike bottom, as it was impossible to pass without landing on one of the numerous sandbars. As soon as we reached the end we were on ground. We jumped overboard and got her off, but had no sooner started than we were on bot-



ROUTE OF ALGA THROUGH THE FLORIDA RIVERS AND KEYS

INTERIOR OF FORT PICKENS AT PENSACOLA, FLA.

tom again. I climbed the mast, and could see the small bars, from 10 to 15 feet in diameter, all about us, no more than 15 feet apart. After grounding about five or six times we finally got through. This is what is called the "Haul Over," a name that is very descriptive of the place.

It was late in the evening, but we could see Palm Beach ahead, which we wanted to reach before dark, though we were disappointed by about an hour. We visited this much-frequented resort the following day, and were very much taken up with its beauty. Fifteen miles from Palm Beach we had another stretch of canal. Going but a short distance in it, we came to the toll line, and had to stop to pay toll. This is the only pay station on these canals, though we were told the company intends putting in three pay stations in different localities. After paying our toll of 10 cents per water-line-foot, we had to pass through the rest of the canal, a distance of 12 miles, before we reached Biscayne Bay and had Miami in sight. Having a favorable breeze in the bay, we made the city of Miami before sundown.

A BIT OF THE FLORIDA EAST COAST CANAL.

ENTERING A SECTION OF THE CANAL.

We held out at Miami two days, for it was one of the prettiest places along our route. Leaving there, we had a good breeze, but, as usual, a head wind, which gave us about 2 miles of beating in the channel before we could do some sailing. Ever since leaving New York the majority of the winds had been giving us considerable windward work and a greater distance to cover. But at that time we were satisfied, as it was only a question of a day before we would be in the Gulf and our course would be changed to a northerly direction.

We did not have much trouble in navigating among the keys, as the water was as clear as crystal and of a beautiful greenish hue. When we reached Cross Key we had to pass through a drawbridge of the Florida East Coast Railway. Of all the bridges we had to pass on the way down this was the slowest to open, as it is worked by hand. We were warned by an old fisherman to be careful while waiting for this bridge to open, as the tide is very strong at that place, and several boats had been wrecked by the tide setting them on the bridge before it had opened.

When we went through the draw we had no trouble, as the tide was at a standstill. After leaving there we went through many small sounds among the keys and reached Channel Key with no trouble. This was the most southerly point of our trip, and our course was changed to a northerly direction here for the Gulf of Mexico. It was getting late when we reached Channel Key, and about dark a northwester broke out that made it very rough outside; so we decided to anchor behind the key for the night and let it blow over, as we were confident of having our usual southerly in the morning. We started the next day with a very light E. wind, so used the engine to help us along, reaching Cape Sable before noon, when the breeze began to increase. It gradually backed to the north, and by dark we had a head wind and a heavy sea against us. We had to sail all night, because we had no shelter in which to anchor, as we had been counting on getting a steady south wind until we reached Mississippi Sound. However, it seemed as if luck was against us, for as soon as we changed our course the wind would shift the same way. The only time we would get a favorable wind would be in a blow.

About midnight it was blowing pretty hard and increasing all the time, so we finally had to tie in a reef. While we were doing this a rain squall broke, with thunder and lightning. It came down in torrents, and I have never seen such a downpour. There was so much water in the cockpit that it could not flow out of the scuppers fast enough, and the hatch over the engine was afloat, letting a quantity of water below. This kept one man busy bailing with a bucket until the rain slackened. About half a mile from us was a schooner that seemed to be having trouble, and when a flash of lightning would come she was plainly visible. She was having a rough time of it, her mainsail being torn to pieces and hanging in shreds. It was then about three o'clock in the morning and the rain had stopped, but the sea was just as heavy. When daylight came we saw with our field glasses a schooner anchored near shore, which was probably the same vessel.

About sunrise that morning the wind died out completely, and the Gulf was like a mirror. We were glad that the sea had gone down; for, after the exciting night, we all needed rest. We were then off Cape Romano, and ran under engine until noon, when a breeze came up from the south. We made sail and had a three-quarter-sheet run, which did not seem possible, as we surely were not accustomed to a favorable wind. The breeze held all day, and we made very good time. We worked all that night with the same

(Continued on page 460.)

A VIEW OF MIAMI.

Navigation for the Amateur

A SHORT COURSE IN THE SIMPLER METHODS OF FINDING POSITION AT SEA BY OBSERVATION OF THE SUN'S ALTITUDE—THE USE OF SEXTANT AND CHRONOMETER

By CAPT. EDMUND MORTON

PART III—SUMNER'S LINE

WE have shown in the preceding articles how to obtain latitude by a meridian observation of the sun; also, how to find the longitude by morning and afternoon observations. Whenever a single observation is worked for either latitude or longitude, the ship's position is not determined definitely by it alone. Both of these observations are necessary by the methods there explained to find the ship's position.

In finding the latitude by a meridian altitude, the sun, or other body, bears either north or south from the observer, and the ship is known to be in a certain latitude; that is, somewhere on a line running in an east and west direction. The longitude is not determined by it. When an observation is taken for longitude at the time the sun is on the prime vertical (bearing east or west), the result will put the ship somewhere on a line running north and south—that is, on a line at right angles to the bearing of the body observed—as noted in the previous observation for latitude. If a ship's position is known to be on two such lines, one running north and south and the other running east and west, she must be at their point of intersection.

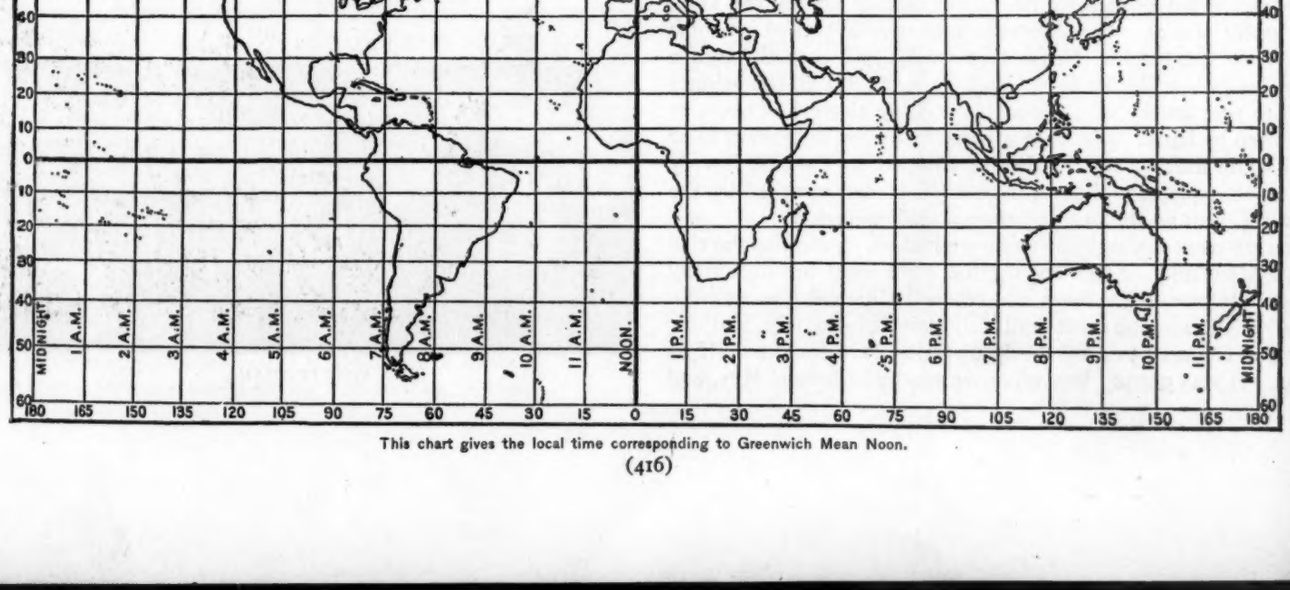
But it often happens that a meridian altitude cannot be obtained. The sun may be under a cloud at noon, or the horizon may be enveloped in a bank of fog. One cannot always wait until noon to find a position; yet it is necessary to know it, in order to proceed with safety, especially in vessels of great speed. Although one observation will not determine the exact position of the observer, it will give a line of positions, which may be all that is required at the time.

The sun is always at the zenith of some point of the earth's surface, and if an observer at this sub-solar point knew the exact time, east or west of Greenwich, at the same instant, his position could be calculated with exactness. This is true in theory, but as the sun is seldom or never in the observer's zenith, it is of no practical use in navigation. Whenever the sun is visible except in the zenith the observer will be somewhere on the circumference of a circle of equal altitude, the radius of the circle being equal to the zenith distance. For instance, if the sun's altitude is 60°, the zenith distance will be 30°, and the observer will be 30° from the sub-solar point, or point directly under the sun. Everywhere, north, south, east and west, 30° distant from this sub-solar point, observers would obtain the same altitude at the same instant of time. (See Fig. 1.) The nearer the sun is to the zenith, the smaller the circle, while the greater the zenith distance, the greater this circle of equal altitude will be. The observer will know whether the time of his observation is in the forenoon or afternoon, and whether he is north or south of the sun; therefore, it is at once apparent on which part of the circle he is. He will also know the ship's position within one or two degrees, so that when a low altitude is taken for longitude the circle will be a large one, and the small portion used in finding a position on a chart will appear as a straight line. This line of position is called the Sumner Line.

If an altitude is taken for longitude and worked out with the latitude by dead reckoning, it will give a certain position. Now, by working the same sight with two assumed latitudes, one 30 miles north and the other 30 miles south of the latitude used in the first computation, two more points of position will be found. In plotting these three points on the chart, they will be found to lie in a straight line with one another. The ship is somewhere on this line, or its extension, at the time of the observation. Only two points are required to determine the direction of a straight line; therefore, the working out of the first position may be omitted.

If the true bearing of the sun is known at the time of observation, this process can be shortened again, and the line of position found by working the sight with the latitude by account, or an assumed latitude only. The ship's line of position is always at right angles to the bearing of the sun or other celestial body observed. This line of position is often of great value, especially when a ship is in the proximity of land, as this line, together with a sounding, may sufficiently define the position. If, on the Atlantic coast of the United States, a sight is taken with the sun bearing S. E., the line of position found will lie in a N. E and S. W. direction, nearly parallel to the coast line. Again, with the sun bearing S. W., a line of position may be found running S. E. and N. W., which, if extended, will cut some prominent point of land, lighthouse or lightship; and by steering a course on this line the objective point will be made right ahead.

When an observation is taken the sun's bearing may be noted at once by the compass and corrected for variation and deviation to find the true bearing. A better way is to take the bearing from



This chart gives the local time corresponding to Greenwich Mean Noon.

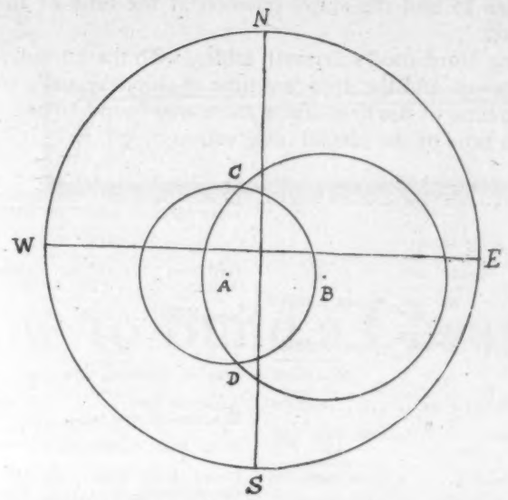


Fig. 1.—A and B sub-solar points. The inner circles of equal altitude cut at C and D. As one is north and the other south of equator, there is no chance of error in finding position.

the azimuth tables. Enter the tables (either Burdwood's or Davis') with the approximate latitude, declination of the sun, and the apparent time, as found in working the sight, and the true bearing can be found at once. The sight must be worked using the latitude by account and an approximate position found. Plot this position on the chart, and draw a straight line through this point at right angles to the sun's true bearing. After the sun has changed its bearing at least two points, take a second observation and the sun's true bearing, and find another line of position, which must be drawn on the chart, as before. The point of intersection of the two lines will be the ship's position, if she has not altered her position between the times of the two observations. (The principle of this is shown in Fig. 2.) In case she has changed her position, mark off the course and distance made in the interval of time between the two sights from the first line. Now draw a line through the point arrived at parallel to the first line. Where this line now crosses the second line will be the ship's position at the time of the last observation. The lines should cross as near at right angles as possible to better define the position. If the lines have only a slight difference of direction, the least error in calculation or plotting on the chart would cause a great error at the point of their intersection. (See Fig. 4.)

Double altitudes, giving the two lines at once, are the best, as in the use of two planets, or stars, when at a large angle of bearing. Such observations are not reliable unless taken in the twilight, when the horizon can be well defined. Venus and Jupiter sometimes excepted, the sun only can be used in the daytime, all other bodies being obscured by its brilliancy.

Some examples of the use of the Sumner lines, in actual practice at sea, will now be given:

On March 3, 1911, about 7:26 a. m., ship was approximately in Lat. 24° 40′ N. and Long. 74° 10′ W. True altitude sun's center 16° 09′, the Greenwich mean time by chronometer 12h. 23m. 40s., chronometer slow 11m. 08s. Sun's declination 7° 08′ S. Equation of time 12m. 17s., to be added to apparent time.

The ship then sailed S. by W. 25 miles, when it was about 9:44 a. m., and another sight was taken. Sun's true altitude 44° 21′, Greenwich time 2h. 42m. 22s. p. m. Declination of sun 7° 05′ S. We wish to find the position of the ship at the time of the second observation.

Both sights are worked out with two assumed latitudes, one 30 miles north and the other 30 miles south of the latitude by account, given in the example as 24° 40′ N. By entering the apparent time in Davis' azimuth tables, with the latitude and declination, the sun's true bearing at the time of the first observation was found to be S. 73° E., and at the time of the second observation S. 48° E. The lines of position will be at right angles to these bearings at the time of each observation. To prove that they are correct, the sights are worked out fully with the assumed lat. and lines of position first drawn, without reference to bearings.

A—FIRST SIGHT

Cor. altitude	16° 09′		Cor. altitude	16° 09′	
Assumed lat.	25° 10′	secant .04332	Assumed lat.	24° 10′	secant .03982
Polar dist.	97° 08′	cosecant .00337	Polar dist.	97° 08′	cosecant .00337
	2)138° 27′			2)137° 27′	
Half sum	69° 13′	cosine 9.55002	Half sum	68° 43′	cosine 9.55988
Altitude	16° 09′		Altitude	16° 09′	
Remainder	53° 04′	sine 9.90273	Remainder	52° 34′	sine 9.89985
		2)19.49945			2)19.50293
Sine of apparent time		9.74972	Sine of apparent time		9.75146
Apparent time		7h. 26m. 27s.	Apparent time		7h. 25m. 12s.
Equation of time		+ 12m. 17s.	Equation of time		+ 12m. 17s.
Mean time at ship		7h. 38m. 44s.	Mean time at ship		7h. 37m. 29s.
Greenwich mean time		12h. 23m. 40s.	Greenwich mean time		12h. 23m. 40s.
Chronometer slow		+ 11m. 08s.	Chronometer slow		+ 11m. 08s.
Corrected G. M. T.		12h. 34m. 48s.	Corrected G. M. T.		12h. 34m. 48s.
Mean time at ship		7h. 38m. 44s.	Mean time at ship		7h. 37m. 29s.
Longitude in time		4h. 56m. 04s.	Longitude in time		4h. 57m. 19s.
Longitude		74° 01′ West	Longitude		74° 20′ West
First position:			Second position:		
Latitude		25° 10′ N.	Latitude		24° 10′ N.
Longitude		74° 01′ W.	Longitude		74° 20′ W.

Plot these two positions on the chart. Draw a line connecting the two points. Ship is somewhere on this line or its extension. Sun's true bearing S. 73° E. Direction of line from *A* to *B* (Fig. 3) is found to be S. 17° W., exactly at right angles to sun's true bearing. Mark off 25 miles S. by W. from *A*, arriving at *G*. Draw line *C D* through point *G* parallel to line *A B*. Line *C D* will be the line of position at time of second sight.

B—SECOND SIGHT

Cor. altitude	44° 21′		Cor. altitude	44° 21′	
Assumed lat.	25° 10′	secant .04332	Assumed lat.	24° 10′	secant .03982
Polar dist.	97° 05′	cosecant .00333	Polar dist.	97° 05′	cosecant .00333
	2)166° 36′			2)165° 36′	
Half sum	83° 18′	cosine 9.06696	Half sum	82° 48′	cosine 9.09307
Altitude	44° 21′		Altitude	44° 21′	
Remainder	38° 57′	sine 9.79840	Remainder	38° 27′	sine 9.79367
		2)18.91201			2)18.93490
Sine of apparent time		9.45600	Sine of apparent time		9.46745
Apparent time		9h. 47m. 10s.	Apparent time		9h. 43m. 30s.
Equation of time		+ 12m. 16s.	Equation of time		+ 12m. 16s.
Mean time at ship		9h. 59m. 26s.	Mean time at ship		9h. 55m. 46s.
Greenwich mean time		2h. 42m. 22s.	Greenwich mean time		2h. 42m. 22s.
Chronometer slow		+ 11m. 08s.	Chronometer slow		+ 11m. 08s.
Corrected G. M. T.		2h. 53m. 30s.	Corrected G. M. T.		2h. 53m. 30s.
Mean time at ship		9h. 59m. 26s.	Mean time at ship		9h. 55m. 46s.
Longitude in time		4h. 54m. 04s.	Longitude in time		4h. 57m. 44s.
Longitude		73° 31′ West	Longitude		74° 26′ West
First position:			Second position:		
Latitude		25° 10′ N.	Latitude		24° 10′ N.
Longitude		73° 31′ W.	Longitude		74° 26′ W.

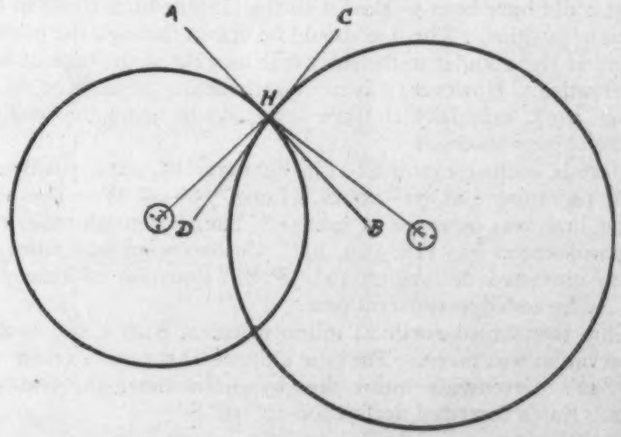


Fig. 2.—Circumference of circles of equal altitudes cut each other at H. Lines of position A B and C D, tangents drawn at right angles to bearing of sun, coincide with circumferences at Point H.

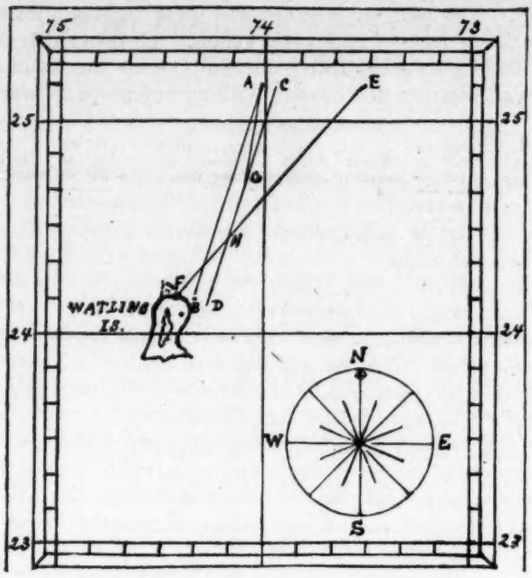


Fig. 3.—Method of finding position by Sumner's line.

Plot these two positions on the chart. Draw a line connecting the two points. Ship is now somewhere on this line or its extension. Sun's true bearing S. 48° E.. Direction of line from *E* to *F* (Fig. 3) is found to be S. 42° W., exactly at right angles to sun's true bearing. Line *E F* cuts line *C D* at *H*, which is the position of ship at time of second observation.

The position found by this method is Lat. 24° 23′ N., Long. 74° 16′ W. We will now work the last sight again, using this latitude.

Cor. altitude....	44° 21′		
Latitude by obs..	24° 23′	secant	.04058
Polar dist.	97° 05′	cosecant	.06333
	2)165° 49′		
Half sum.....	82° 54′	cosine	9.09202
Altitude	44° 21′		
Remainder	38° 33′	sine	9.79463
			2)18.93056
Sine of apparent time.....			9.46528

Apparent time	9h. 44m. 12s.
Equation of time.....	+ 12m. 16s.
Mean time at ship.....	9h. 56m. 28s.
Greenwich mean time.....	2h. 42m. 22s.
Chronometer slow	+ 11m. 08s.
Corrected G. M. T.....	2h. 53m. 30s.
Mean time at ship.....	9h. 56h. 28s.
Longitude in time.....	4h. 57m. 02s.
Longitude	74° 15′ 30″ West

This is seen to get a result of 74° 15′ 30″, just one-half minute difference. None of these calculations have been carried out beyond whole minutes, so the results are practically the same.

About half an hour after the last observation the lighthouse on Dixon's Hill, Watling's Island, was sighted bearing S. W. about 14 miles distant.

Over half the work we have done was unnecessary. Each sight could have been worked with the latitude by account to find a line of position. The line should be drawn through the position found at right angles to the sun's true bearing at the time of each observation. However, it is more satisfactory at times to do the whole work, especially if there is any doubt about the bearings of the objects observed.

Here is another example: On February 15, 1911, position by dead reckoning Lat. 31° 00′ N. Long. 75° 00′ W. The sun's lower limb was observed at sunrise. The Greenwich mean time by chronometer was 11h. 33m. 49s. Chronometer slow 10m. 36s. Sun's corrected declination 12° 58′ S. Equation of time 14m. 21s., to be added to apparent time.

Ship then sailed north 24 miles, when, at 8:28 a. m., another observation was taken. The true altitude of the sun's center was 22° 42′. Greenwich mean time by chronometer 1h. 31m. 56s. p. m. Sun's corrected declination 12° 56′ S.

We wish to find the ship's position at the time of the second observation.

By using Burdwood's azimuth tables, with the latitude, declination of the sun and the apparent time at ship, the sun's true bearing at the time of the first observation was found to be S. 75° E., and at the time of the second observation S. 57° E.

Latitude by acc't.	31° 00′	secant	.06693
Polar dist.	102° 58′	cosecant	.01122
	133° 58′		
Constant	— 21′		
	2)133° 37′		
Half sum	66° 48′	cosine	9.59543
Constant	21′		
Remainder	67° 09′	sine	9.96451
			2)19.63809
Sine of apparent time.....			9.81904

Apparent time	6h. 30m. 04s.
Equation of time.....	+ 14m. 21s.
Mean time at ship.....	6h. 44m. 25′
Greenwich mean time.....	11h. 33m. 49s.
Chronometer slow.....	+ 10m. 36s.
Corrected G. M. T.....	11h. 44m. 25s.
Mean time at ship.....	6h. 44m. 25s.
Longitude in time.....	5h. 00m. 00s.
Longitude	75° 00′ West

First position:
Latitude .....31° 00′ N.
Longitude .....75° 00′ W.

Cor. altitude....	22° 42′		
Latitude by acc't.	31° 24′	secant	.06877
Polar dist.	102° 56′	cosecant	.01116
	2)157° 02′		
Half sum .....78° 31′		cosine	9.29993
Altitude	22° 42′		
Remainder	55° 49′	sine	9.91763
			2)19.29659
Sine of apparent time.....			9.64829

Apparent time	8h. 28m. 39s.
Equation of time.....	+ 14m. 21s.
Mean time at ship.....	8h. 43m. 00s.
Green. mean time...	1h. 31m. 56s.
Chronometer slow...	+ 10m. 36s.
Corrected G. M. T..	1h. 42m. 32s. P. M.
Mean time at ship...	8h. 43m. 00s. A. M.
Longitude in time...	4h. 59m. 32s.
Longitude	74° 53′ West

Second position:
Latitude .....31° 24′ N.
Longitude .....74° 53′ W.

In Fig. No. 4, first position is at *G*. Sun's true bearing S. 75° E. Line *A B* is drawn through point *G* in a direction S. 15° W., which is at right angles to sun's true bearing. Ship then sailed 24 miles north, arriving at point *H*. Line *C D* is drawn through point *H* parallel to line *A B*.

Second position was at *K*. Sun's true bearing at time of last observation S. 57° E. Line *E F* is drawn through point *K* in a S. 33° W. direction—that is, at right angles to sun's true bearing. Now, where line *E F* cuts line *C D* will be the position of ship at the time of the second observation—namely, at *P*, in Lat. 31° 04′ N., Long. 75° 09′ W.

This position can be found without drawing any lines on the chart, as will be explained in a later article. It is advisable, however, to draw the lines lightly with a pencil on the chart if the ship is near any dangerous shoals or coast line.

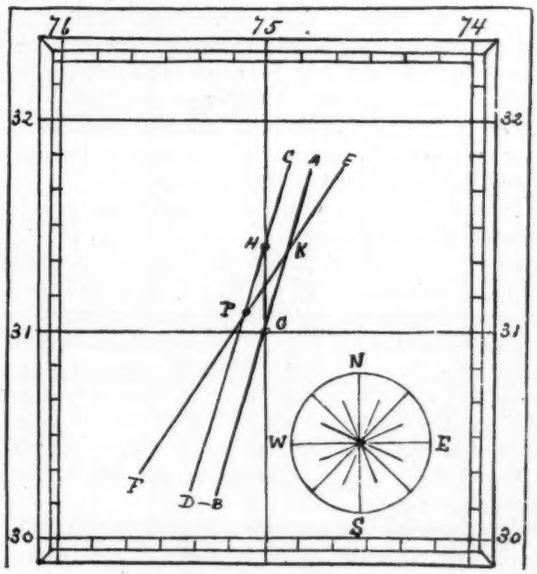
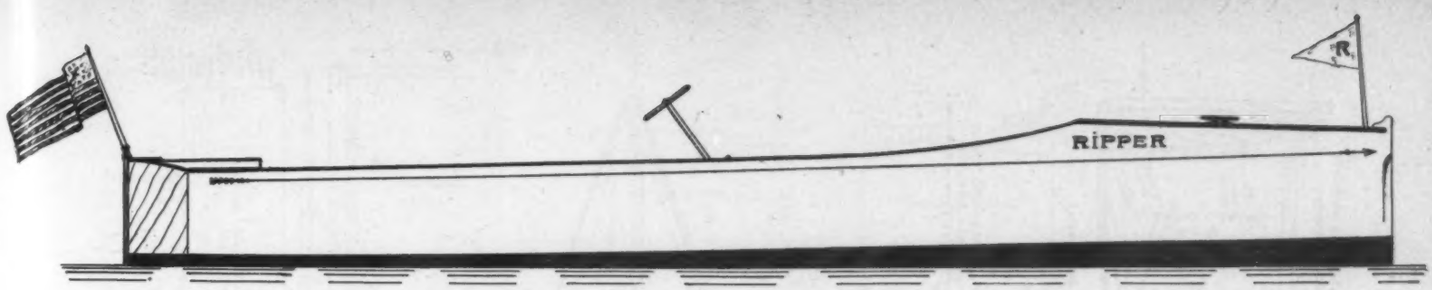


Fig. 4.—Plotting Sumner's lines.



OUTBOARD PROFILE OF 21-FOOT SPEED BOAT RIPPER.

How to Build a Cheap and Speedy 21-Foot Runabout

By JOHN A. CONNOLLY, Jr.

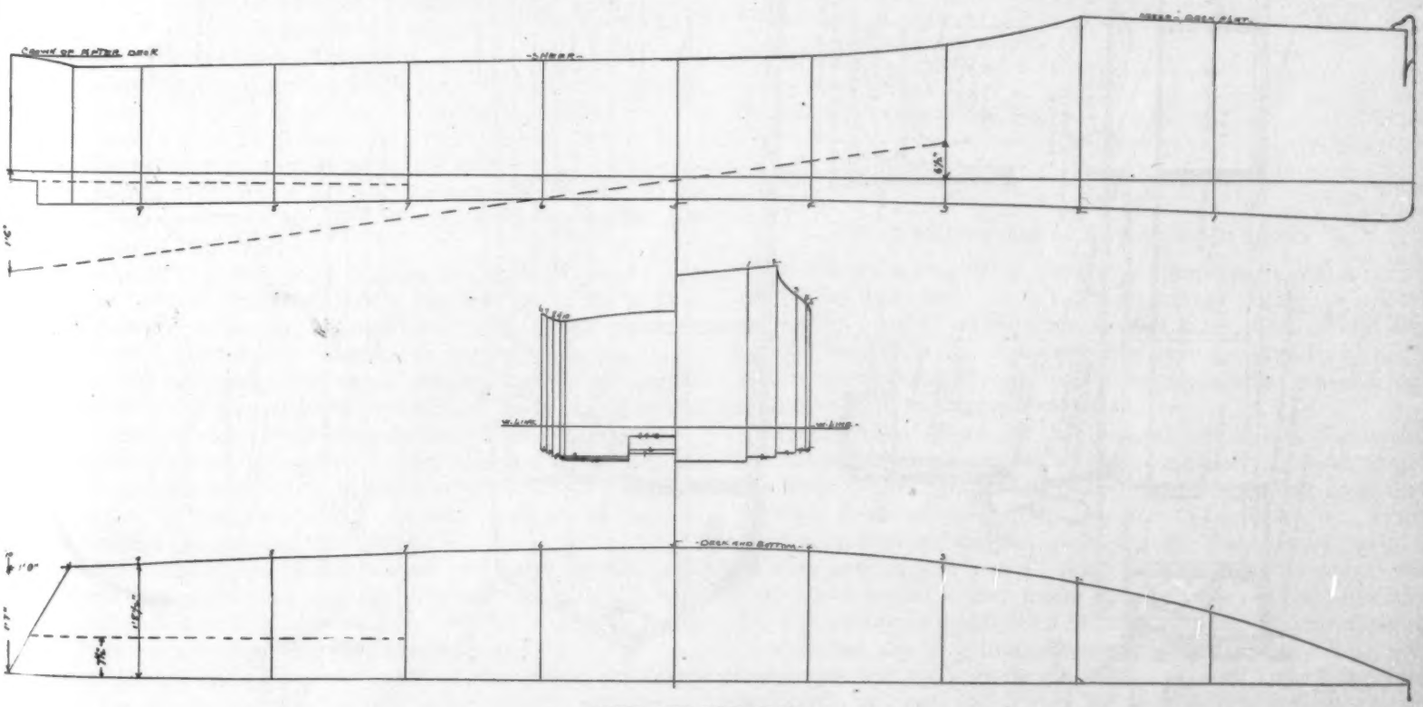
Plans by the Author

IN presenting the plans of this boat to the readers of YACHTING, I have endeavored to produce a craft that will not only be easy to build, but one that can be turned out for very little money by the amateur builder, believing that there are a great many who would like to become the owners of a speedy runabout, but whose purse strings do not permit of a larger boat, or who are afraid to undertake the building of a more difficult model. She was designed to be a boat for the many. In her I have not attempted to get, and do not claim, excessive speed; but I have endeavored to produce a model that will give *more* than the average speed on a limited horsepower.

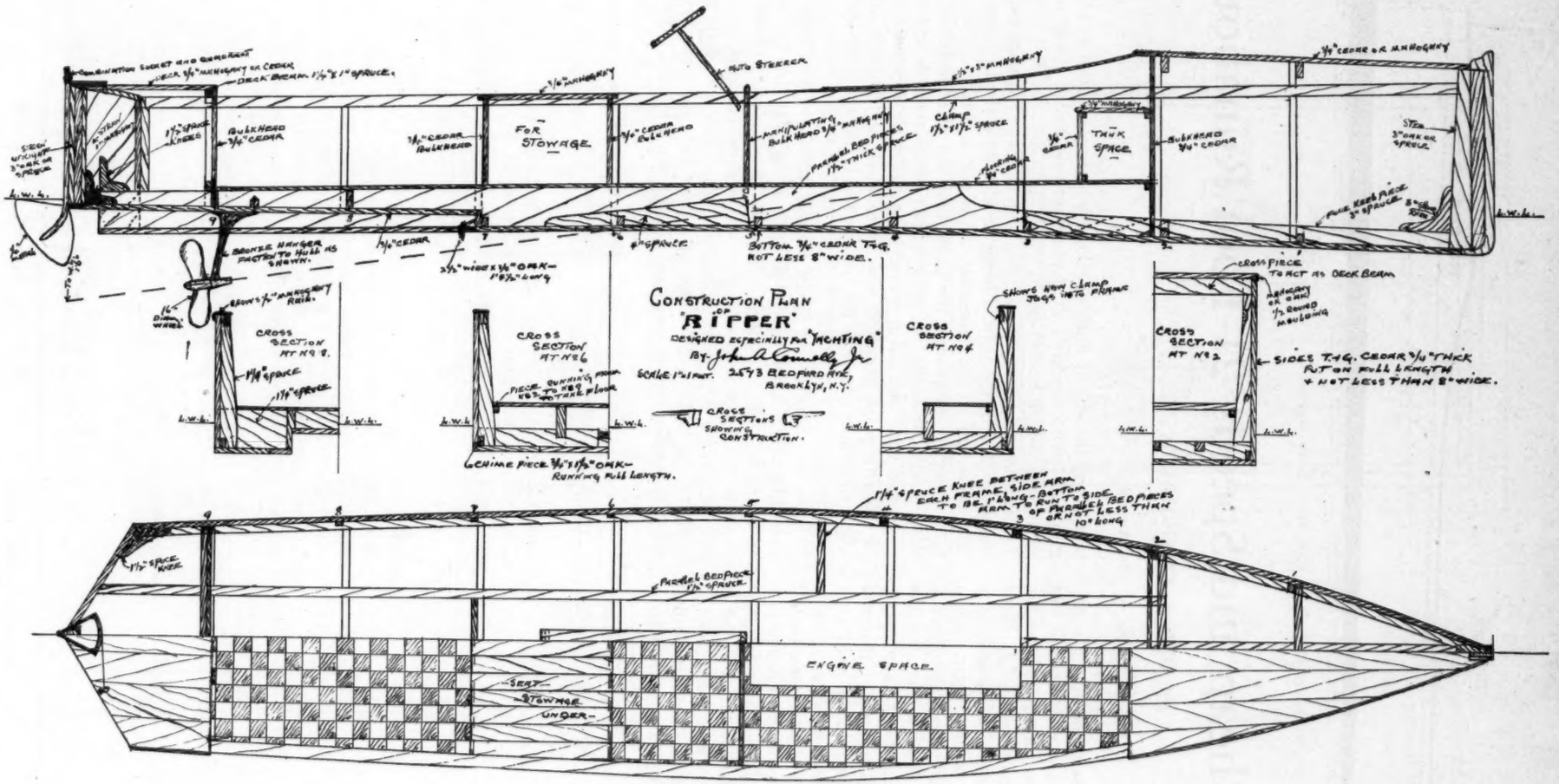
The type from which Ripper, as I have called her, is modeled is a flat-bottomed, square-sided boat, as being not only the cheapest form, but also the easiest to build. The method of construction is of the simplest, so that anyone at all familiar with the use of tools should be able to put her together. I have incorporated in the design lines of speed that should assist in bringing out a higher rate of efficiency in this type and in overcoming the tendency prevalent in most speed boats of to-day to raise their bows way above the line of flotation, thereby setting up a series of angles that have a tendency to stop, rather than assist, a boat when developing a high rate of speed.

The principal of the "plane" has been employed to some extent, the after half of the bottom being practically a single plane that will cause her to lift somewhat when she is driven. One will also notice by examining the plans that the after underbody is not entirely flat across, but is broken by an indentation or tunnel, 16 inches wide and about 6 feet long, being another adaptation of the hydroplane principle, which should steady the boat, allowing a straighter course to be steered than if the after bottom was entirely flat.

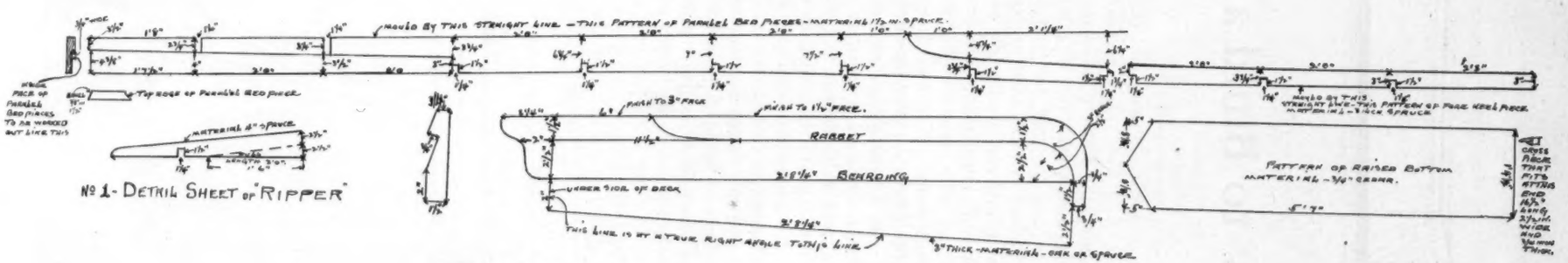
From the detailed cost of the various items it will be seen that the material, exclusive of rudder or steering gear, can be bought in the neighborhood of $65 or $70, and if one elects to build her himself this amount should represent the entire outlay for the boat, exclusive of the engine and fittings. The hull itself could probably be built by a builder at a price ranging from $150 to $200, depending on the finish and kind of material used. No spe-



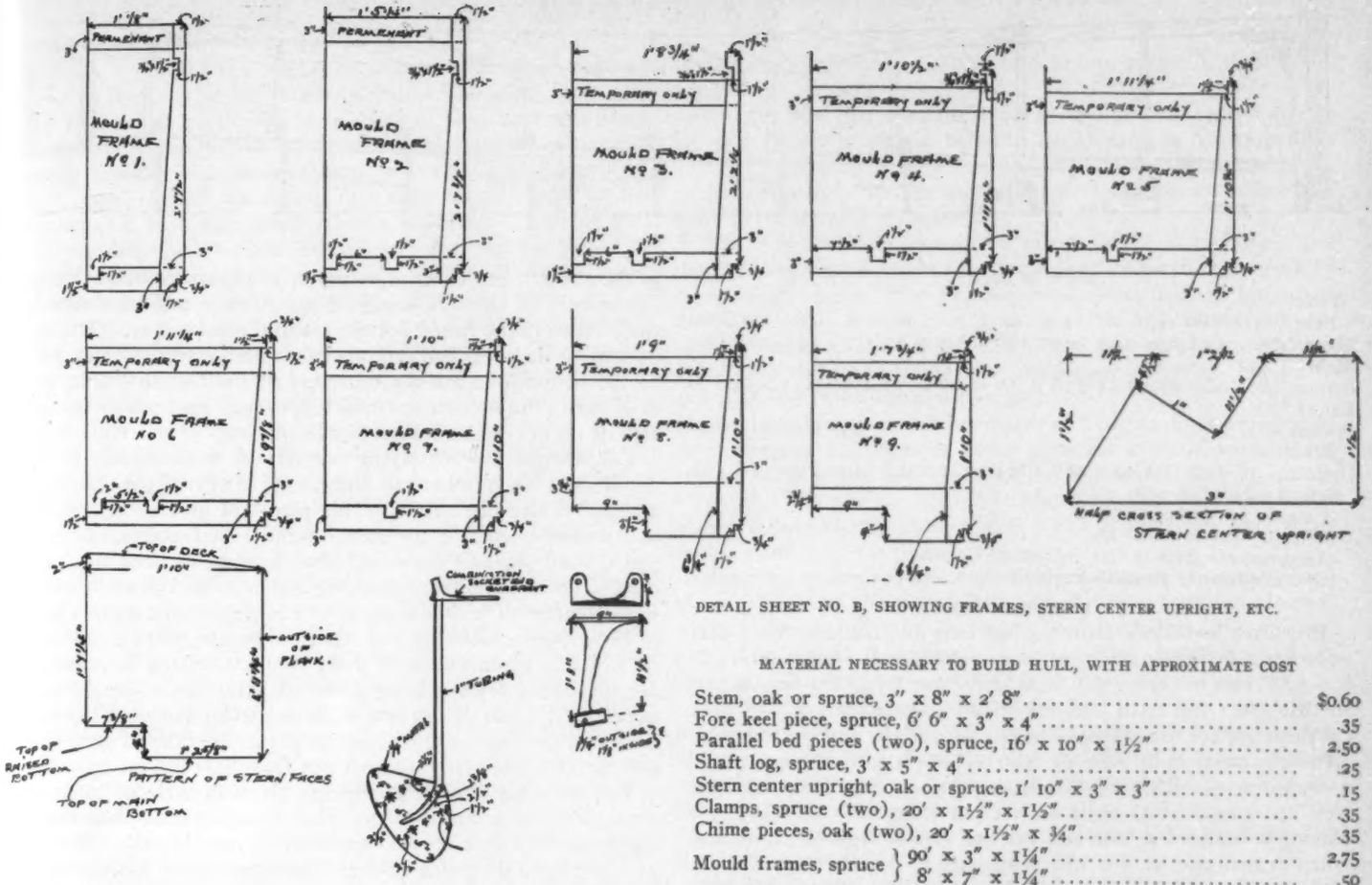
LINES AND BODY PLAN.


CONSTRUCTION PLAN OF "RIPPER"
DESIGNED ESPECIALLY FOR "YACHTING"
By John A. Connelly Jr
SCALE 1"=1 FOOT. 2573 BEDFORD AVE. BROOKLYN, N.Y.
FOR STOWAGE
ENGINE SPACE
CROSS SECTIONS SHOWING CONSTRUCTION.
CROSS SECTION AT No 8.
CROSS SECTION AT No 6
CROSS SECTION AT No 4
CROSS SECTION AT No 2
BOTTOM 1/4" CEDAR T.&G. NOT LESS 8" WIDE.
SIDES T.&G. CEDAR 3/16" THICK PUT ON FULL LENGTH & NOT LESS THAN 8" WIDE.
CHINE PIECE 3/4" x 1 1/2" OAK RUNNING FULL LENGTH.
PARALLEL BED PIECE 1 1/2" SPRUCE
1 1/4" SPRUCE KNEE BETWEEN EACH FRAME SIDE ARM. BOTTOM TO BE PLANED TO RUN TO SIDE ARM OF PARALLEL BED PIECES OR NOT LESS THAN 10" LONG
SEAT STOWAGE UNDER
STEM 3" OAK OR SPRUCE
FORE KEEL PIECE 3" SPRUCE
BRONZE RUDDER FASTEN TO HULL AS SHOWN.
BRASS 3/4" MAHOGANY RAIL.
CROSS PIECE TO ACT AS DECK BEAM
MAHOGANY OR OAK 1/2 ROUND MOULDING

CONSTRUCTION PLAN OF RIPPER.


No 1- DETAIL SHEET OF "RIPPER"
MOULD BY THIS STRAIGHT LINE — THIS PATTERN OF PARALLEL BED PIECES - MATERIAL 1 1/2 IN. SPRUCE.
TOP EDGE OF PARALLEL BED PIECE.
WHERE PIECE OF PARALLEL BED PIECES TO BE WORKED OUT LIKE THIS
MATERIAL 4" SPRUCE.
RABBET
BEARING
UNDER SIDE OF DECK
THIS LINE IS AT A TRUE RIGHT ANGLE TO 1/4 LINE.
3/8" THICK - MATERIAL - OAK OR SPRUCE.
PATTERN OF RAISED BOTTOM MATERIAL - 3/16" CEDAR.
CROSS PIECE THAT FITS ACROSS END OF KEEL & RUNS 2 3/4 IN. WIDE AND 3/4 IN. THICK.

DETAIL SHEET NO. I, SHOWING PARALLEL BED PIECES, FORE KEEL PIECE, STEM, ETC.



DETAIL SHEET NO. B, SHOWING FRAMES, STERN CENTER UPRIGHT, ETC.

MATERIAL NECESSARY TO BUILD HULL, WITH APPROXIMATE COST

Stem, oak or spruce, 3″ x 8″ x 2′ 8″		$0.60
Fore keel piece, spruce, 6′ 6″ x 3″ x 4″		.35
Parallel bed pieces (two), spruce, 16′ x 10″ x 1½″		2.50
Shaft log, spruce, 3′ x 5″ x 4″		.25
Stern center upright, oak or spruce, 1′ 10″ x 3″ x 3″		.15
Clamps, spruce (two), 20′ x 1½″ x 1½″		.35
Chime pieces, oak (two), 20′ x 1½″ x ¾″		.35
Mould frames, spruce	90′ x 3″ x 1¼″	2.75
	8′ x 7″ x 1¼″	.50
Stern faces, mahogany, 10′ x 1′ x 1″		.90
Decking, mahogany, 38′ x 8″ x ¾″		2.25
Deck rails, mahogany (two), 15′ x 3″ x ½″		.60
Deck moulding, mahogany, half round, 14′ x 1¼″		.35
Flooring, cedar, tongue and groove, 165′ x 3″ x ¾″		4.00
Side planking, cedar, 130′ x 10″ x ¾″		10.00
Bottom planking, cedar, 84′ x 1′ x ¾″		7.50
Bulkheads	mahogany 8′ x 10″ x ¾″	.65
	spruce, 32′ x 10″ x ¾″	1.95
Spruce knees		1.50
Cost of fastenings, painting, etc.		14.00
Extras, etc.		15.00
Total approximate cost		$66.50

cial size engine has been shown, this being left to the choice of the prospective builder, and will, of course, be governed largely by his pocket-book. From 4 horsepower up could be installed, but to get the best results a 7 to 10-horsepower, 2-cylinder, light-weight motor should be installed. With this latter power fairly high speed should be obtained for a boat of this length; in other words, from 12 to 15 miles per hour.

The plans accompanying this article are very complete, comprising full-scale drawings of all the various parts, moulds, etc. It will be noticed from these that a very rigid, though simple, form of construction has been produced by the use of two parallel bed-pieces running from frame No. 2 to the extreme after end of the boat. These bed-pieces not only simplify construction, but add to the strength of the hull.

The rake of the shaft is 12 degrees, and the steersman's seat is located between two bulkheads a few feet aft of the engine. To the forward, or engine, bulkhead is attached an auto-steerer, engine control, and all parts necessary to properly handle the boat. The gasolene tank is located at the forward end of the engine compartment, and may be either cylindrical or square, as the owner prefers, in either event being incased to form a seat.

Sufficient deck has been given her aft to insure a graceful appearance, and the forward deck, which is 5 feet long, is flat, and is formed by raising the sides of the hull, as shown in the outboard profile accompanying this article.

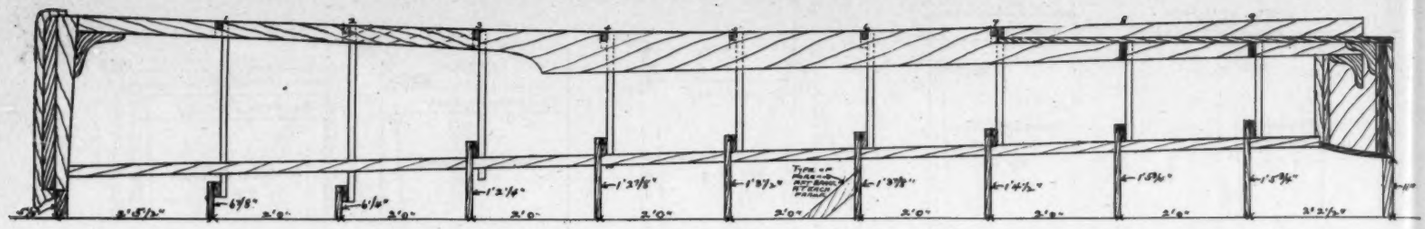
A detailed description of all the necessary parts follows, with directions for building the hull, the principal claim for this boat being its simple form of construction and its cheapness, with more than average speed for the power employed.

Dimensions of hull: Length over all, 21 feet; length on water-line, 21 feet; beam (extreme), 4 feet; draft of hull (maximum), 7 inches.

FULL DESCRIPTION OF HOW TO BUILD RIPPER

To insure the boat being constructed properly, it is first necessary to lay down the lines to full size, thereby giving the builder the correct sizes of all the frames, stern faces, sides of hull and parallel bed pieces that run from the stern forward to within 5 feet of stem, the latter being used primarily as steadiers, and jogging over all cross-frame floor pieces.

The process of laying out this boat full size is very simple and will cause very little trouble, as the laying down is more to get the shape of the parallel bed pieces and the fore keel piece that runs aft from where it joins the stem to frame No. 3. At the same time the stem can be run in, and the stern center upright, it being necessary to run all these parts in in order to get the shapes and proper angles where they join each other, especially the fore keel piece and bottom of raised hull aft at stern upright. This applies also to getting the proper shape of ends of parallel bed pieces and the jogs on the bottom of each and of the fore keel piece, to insure the frames fitting into them correctly when setting up to build. (See detailed plans.)



SET-UP PLAN.

TABLE OF OFFSETS

Waterline as Base Line	Stem	1	2	3	4	5	6	7	8	9	Stern
Sheer (*A*)...	2.2.2	2.3.4	2.4.3	2.0.0	1.10.0	1. 8.4	1. 8.0	1. 7.4	1.7.0	1.6.4	1.6.4
Main Bottom (*B*).	0.6.0	0.5.4	0.4.4	0.3.6	0. 3.0	0. 3.0	0. 3.3	0. 4.0	0.4.4	0.5.0	0.5.0
Raised Bottom (*B*).									0.1.0	0.1.0	0.1.0
Breadths											
Deck	0.1.4	1.0.1	1.5.2	1.8.6	1.10.4	1.11.2	1.11.2	1.10.0	1.9.0	1.7.6	1.6.2

Bottom—Same as deck.

A stands for above base line.

B stands for below base line.

Measurements given in feet, inches and eighths.

All measurements given to inside of plank, except sheer.

LAYING DOWN

Procure a level floor about 24 feet long and not less than 6 feet wide for a laying-down space, and see that it is swept clean. It is a good idea to lay on this floor heavy manila or building paper, so that after you have laid out all the parts on it you can then cut them out for use in moulding out the various parts of the boat. After the paper is thoroughly fastened in place on the floor, take a chalk line—which must not be less than 22 feet long—chalk it well and stretch it as tight as you can along side of floor. By placing a bradawl at one end the line can be held in place, and when drawn taut at the other end snap it sharply two or three times until you have a good chalk line showing on the floor. This line you are to use for your base line, it being also the waterline. It is best to keep this line about 2 feet in from side to allow ample room to work along it.

At the extreme right end of this line strike up at right angles to it a line about 3 feet high. This will be your stem line. Then measure to the left 3 feet and strike up another line parallel to the stem line. After you have struck in this line, which is frame No. 1, continue to measure to the left 2 feet, and run in at each of these points a parallel line corresponding to frame No. 1, until you reach the stern line, or after end of hull.

Having run in all these lines, be sure they are continued below the base line at least 1 foot, as you must remember you are using the waterline as a base line and the hull projects below it. Now proceed to run in the sheer line, which, in other words, is the vertical deck line. Start at the stem line and measure up above the base line the distance given in the table of offsets for sheer at this point and also for frames No. 1 and No. 2. Having done so, take a straight edge, which should be at least 9 feet long, 3 inches wide and ½ inch thick, made of either white pine, yellow pine or cypress, and, covering the points marked off at these three stations, draw a line through them, and you have the shape of sheer on deck at these three frames. Next proceed to frame No. 3 and measure the distance up from table of offsets, as before. This can be done at every frame till you reach the stern line. It will be necessary now to take a long batten, at least 22 feet long, 2 inches wide and 1 inch thick, to run in the sheer at the points measured from frame No. 2 to stern line. Place the batten on these points, tacking it in place with 2-inch wire nails, either driven through the batten or on each side of it. When accomplished and it looks fair to the eye, mark in the sheer line with a carpenter's heavy lead pencil.

Now proceed to run in bottom line of hull in the same manner as the sheer. In this case, however, you measure below the base line instead of above it, using offsets given in table for main bottom. Run in the raised bottom aft in the same way. The curve of stem at its lower end can be made with a compass after adding to the bottom of stem the thickness of the bottom plank, which is ¾ inch., the bottom line which you have just run in being the top, or inside, of the bottom planks of boat.

For instructions for laying out size of stem, rabbet, etc., see detail sheet No. 1, where all dimensions are given for this, as well as parallel bed pieces, etc. This plan will give the exact shape and measurements of the stem, parallel bed pieces, fore keel piece, shaft log and the raised after bottom, and the jogs necessary to go in bed pieces, shaft log and fore keel piece. Running in the bottom of hull is to assist you in getting the correct shapes of these pieces, including the stern center upright, a cross-section of which is given on detail sheet No. 2. All the measurements for the mould frames being given on sheet No. 2, it will be unnecessary (if you do not care to do so) to lay out your horizontal deck line and bottom lines, except to get the rake of stern faces, and then you need only measure out from base line on Station No. 9 and stern line the measurements given in table of offsets for deck, drawing a line through these measurements, then measuring forward 1 foot from stern line to where it strikes deck line, and you have the point on deck line where your V-shape strikes it The stern line can be penciled in by covering point where stern line intersects base line and point on deck line. Thus you get the V-rake of stern. (See Lines plan.)

It is necessary to run in this V-shape to find out how much further aft the parallel bed pieces, which are 1½ inches thick, run from frame No. 9 to where they touch the inside of stern faces, which are 1 inch thick. The inside of these parallel bed pieces sets out from center line or base line 7½ inches. (See Lines plan.) For correct measurements of stern faces, see detail sheet No. 2.

The more important parts being laid out, you can proceed to work out the stem, stern center upright, mould frames, stern faces, parallel bed pieces and fore keel piece. By studying the different plans shown, on which appears each individual piece, with its dimensions, you cannot fail to get every one of them correct.

After this is accomplished proceed to set up the boat by fastening together the raised bottom and parallel bed pieces, not forgetting the cross-piece that fits in groove in forward end of each parallel bed piece. This raised bottom being fastened to the two bed pieces, makes it an easy matter to handle both. Next get out and construct all the mould frames to measurements and sizes as given on detail sheet No. 2, with the necessary jogs therein, as shown, into which the parallel bed pieces and fore keel piece fit.

Set all these mould frames up according to measurements given on the set-up plan, and when this is done and they are correctly spaced you can insert in jogs of each mould frame from No. 2 to No. 9 the parallel bed pieces. Before doing this it is best to fasten the stern center upright to after end of raised bottom, and in this way as soon as parallel bed pieces are inserted in mould frame jogs you can fasten end of stern center upright nearest to floor in place, as shown on set-up plan.

Next take the fore keel piece, to which you have fastened the

stem with a 3-inch-thick spruce knee, and insert in place, fastening stem to floor, as shown in set-up plan. The stern faces can then be fastened in place with brass screws. The next step is to insert in place in the jogs at top of each mould frame the clamps, fastening the after ends to stern faces with 1½-inch-thick spruce knees. These clamps are to jog into each mould frame at its top, to bring it flush with inside of side planking. In doing the work so far described, see that everything fitted together has been thoroughly fastened with 2½-inch galvanized boat nails, heads being countersunk and puttied over and all seams formed by fitting in raised bottom and cross-piece white-leaded and flannel-laid before putting in place, to prevent leaking. It is best in fastening stern faces in place to use 1¾-inch brass screws, countersinking heads, and all mould frames should be put together with the same fastenings. To make sure that the frame is set up properly, strike a chalk line lengthwise through the middle of floor, on which you are to build your boat, and set off on it the required distances, as given in set-up plan, where each mould frame should set, and also the stem and stern center upright.

Each mould frame is to be set at its respective place and at right angles to the fore-and-aft line. It is best to run the cross-lines at these respective points at least 3 feet on each side of fore-and-aft line, to give ample width to insure mould frames being set up true. The boat is to be built upside down, as the set-up plan shows, and each mould frame is to have a 3 x 1-inch cross-bar across its top, fitting in place under clamp jog, to which is to be fastened at its center, as a support from the floor, a 6-inch by 1-inch piece, the length of which is given at each station on set-up plan, the center of the support coming directly over the fore-and-aft line.

Be sure to put in place the chime piece of 1½-inch x ¾-inch oak, full length where jogs show in mould frame for it. You can now proceed to put on the planking of the boat. These can be of ¾-inch tongued and grooved cedar, four or five strakes on each side, full length of hull, and not less than 8 inches in width. Keep the planks perfectly straight, and put on the one next to bottom first. Put in place temporarily at first, keeping the full width of plank at stem, cutting lower end to fit in rabbet, and then mark on it the shape of bottom of hull at the respective mould frames. Remove plank after this is done and sweep in the shape of bottom along points with your long batten, after which saw out to shape and put on. Be sure that the end which fits at stern face is cut right, so that the outside of plank will finish flush with outside edge of stern faces. When in place correctly, fasten plank to each mould frame with four copper boat nails, burring and riveting tightly together. Fasten plank to stem and stern faces with 1½-inch brass screws, countersinking heads.

The balance of plank can be put on, one strake at a time, in the same way, making sure that the planks are gradually shoved up in place, while plank is fastened to mould frames, stem and stern faces with clamp screws; otherwise, you might tear the tongue or groove on respective planks all to pieces and thus lose the advantage of same. White-lead each joint before slipping planks into place, to make seam watertight. In putting on top plank on each side of hull, the sheer in it can be worked out after plank is slipped in place and fastened. The sides can be put on with flush seams and caulked afterwards, if builder prefers it to the tongue-and-groove planking.

After sides have all been put on, proceed to place bottom planks on boat. For this purpose use full-length ¾-inch tongued and grooved cedar not less than 8 inches wide, of course running them lengthwise. The bottom is to be fastened to sides, chime pieces, parallel bed pieces, fore keel piece, stem, mould frames, stern faces and stern center upright with 2½-inch galvanized boat nails, countersunk and puttied. All seams are to be white-leaded and linen-laid in white lead before plank is fastened in place.

You can now turn boat right side up and proceed to complete it. Do not forget to put in between each frame a 1¼-inch-thick spruce knee side arm, to be 12 inches high from bottom, the lower or bottom arm to run to side of parallel bed pieces or not less than 10 inches long on bottom.

The deck aft has a crown of 2 inches in 1 foot 10 inches, and the deck beam at No. 9 mould frame is to be given the necessary crown accordingly. The forward deck is flat, and the top cross-pieces on mould frames Nos. 1 and 2 are to be permanent, to act as deck beams. The other cross-pieces can now be removed. Deck material to be of ¾-inch mahogany or cedar, put on in shape as shown on construction plan.

The next thing is to put in cockpit and engine floor of ¾-inch-thick tongued and grooved cedar 3 inches wide, allowing space for inserting engine and reverse gear and setting flooring on top of parallel bed pieces. Insert bulkheads, shown on construction plan at mould frames Nos. 2, 5, 6, 7 and 9, and cover the top between 5 and 6, to form seat.

Make the tank compartment to size, as shown on construction plan. Finish off the top of hull sides between fore-and-aft deck with a ½-inch cedar or mahogany strip, 3 inches wide. Place oak or mahogany moulding, 1¼ inches thick, half-round shape, along outside of fore and after deck, to finish same off properly.

The hull is now practically completed. It will be found best, before assembling the mould frames, parallel bed pieces, fore keel piece, stem, stern center upright and clamps in place, to paint them with gray paint. After stern faces are put in place, paint them gray inside. The sides and bottom of hull can also receive the same treatment. Painting these different parts preserves the wood and protects it.

All wood, other than that for rails, top of seats, decks and manipulating bulkhead (which is to be of mahogany), can be painted inside to suit owner's taste. Those mentioned can be given two coats of good spar varnish. For exterior finish of hull, rub down smooth by sandpapering, puttying or plugging all countersunk holes and apply paint in color to suit builder's taste, putting on a filler and at least two good coats. The bottom of boat below waterline should be painted with a good anti-fouling paint.

The hull is now complete and ready for installation of engine and accessories. No special horsepower engine is recommended; any power, from 3 horsepower up, can be installed, according to owner's purse, though from 6 to 10 horsepower is recommended, to get the best results and to get the boat to raise or "plane" in the manner in which she is designed to run. Do not use too heavy an engine, as it will take more power to lift its weight, the principle of the design being to have the boat lift when under way, decreasing the displacement.

The engine is to be fitted in between the parallel bed pieces, cross-beams being jogged into inside faces of said bed pieces, and fore-and-aft beams jogged into cross-beams, to take and support engine base and reverse gear. This plan of placing these parallel bed pieces in hull allows ample room and space to install properly any size engine.

The strut or hanger to hold shaft on outside of hull can be patterned after sketch shown on detail sheet No. 2. This also applies to your rudder and stock, a sketch of which appears on the sheet. After installing engine properly put shaft hanger in place, insert gasolene tank, hang the rudder, adjust steering apparatus, connect up engine with tank and batteries, and you are ready to launch a runabout that will not only be serviceable, but safe and comfortable, and exceedingly speedy for the power developed. This craft will especially fill the wants of those looking for all these qualifications at a reasonable cost for the entire outfit.

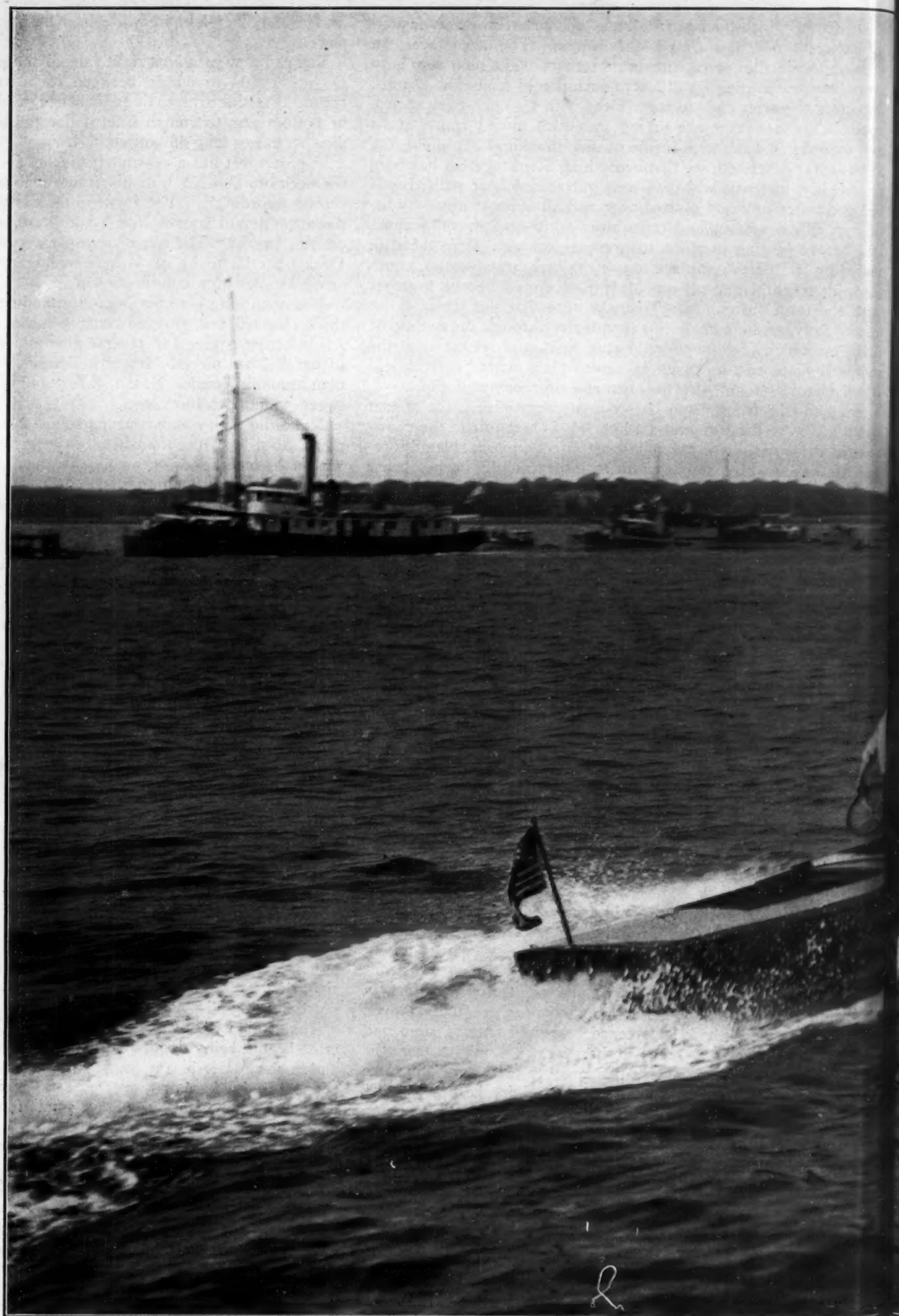
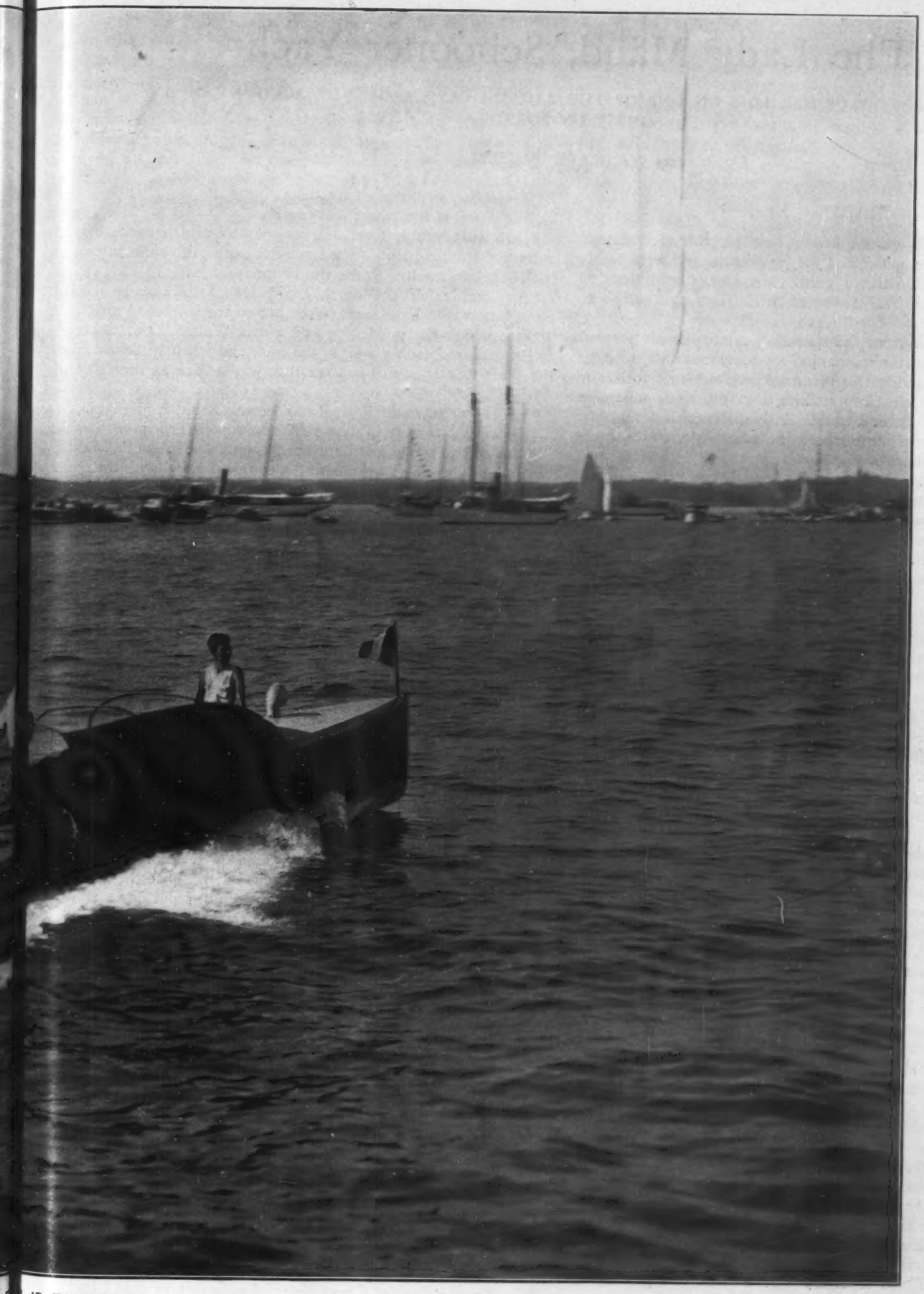


Photo by F. A. Walter.

READY FOR



AT HUNTINGTON.

The Lady Maud, Schooner Yacht

A NARRATIVE OF HER LOSS ON ONE OF THE BAHAMA CAYS, FROM THE ACCOUNT OF A GUEST ON BOARD

By W. CLARK RUSSELL

CHAPTER XI.

SIR MORDAUNT was the first to quit the table after dinner that night. He apologized for leaving us, and went to his wife's cabin. On this I quitted my seat, too anxious to linger, and, going to my cabin, put on my oil-skin coat and went on deck.

To my sight, fresh from the sparkling cabin, the air seemed pitch-dark. I stood at the companion for some moments, waiting for my eyes to get used to this profound blackness. I then saw the rays of the binnacle lamp striking into the thick mist like luminous gold wire. Later I could faintly distinguish the outline of the bulwarks over against me on the other side, and a fragment of the mainmast where the haze from the skylight fell upon it. But that was all. This being the second dog-watch, I knew Tripshore would be on deck, so I called his name.

"Here, sir," he answered, and came to my side.

"Have you kept the lead going?" I asked.

"Yes, sir," he replied, "but we get no bottom."

"And we want none, Tripshore. Have you seen anything of Purchase?"

"No, sir. His cabin door's to, and I allow he's turned in and asleep."

"The wind keeps steady," said I; "but so fresh as it is, I wonder it doesn't blow away this mist. The weather is thicker than it was. It's like smoke. I never remember the like of it," said I, facing to windward a moment, and then gladly turning my back on the blinding, penetrating drizzle.

"The men have grown anxious since Sir Mordaunt talked to 'em," said Tripshore, after a pause. "They're not used to weather o' this kind, and they've took it in their heads that Mr. Purchase is all out in his reckonings. His being in drink at a time like this is a bad job, sir."

"You will remember, Tripshore," said I, "that you had confidence enough in Purchase's reckoning to fancy that I was over-uneasy when I told Sir Mordaunt that I should like to see the yacht on the starboard tack."

"You may be right, sir, though," said he, quickly.

"In my own mind," said I, "I am convinced that we are farther to the westward than we know of. I may be wrong. It is because I can't be sure that I don't insist upon heading away to the norrard."

"If you'll give the word, I'll put the yacht round at once," said he.

"Not without Sir Mordaunt's leave. He wants to fetch Kingston as soon as he can, and dislikes the idea of turning tail upon it. When he comes on deck——"

But before I could finish my sentence he arrived. That is to say, he came up the steps, but stopped before he reached the top of them and stood there like a man struck blind.

"My God!" he ejaculated, "what a night!"

I sang out cheerily: "Come along, Sir Mordaunt. It'll not be so black when your sight has lost the glare of the cabin."

"Oh, are you there, Walton?" he cried, and came on deck, but remained standing, as I had, in front of the companion.

"What a night!" he repeated. "It is not yet eight o'clock. Who is that near you?"

"Tripshore, sir," replied the mate.

"What sail is the vessel carrying?"

"Just what you left on her, sir—double-reefed mainsail and outer and standing jibs. She's snug enough, and wants what she has if she's to ratch with the wind fore and aft her."

"Ay, and ratch she must," said I. "Tripshore is willing enough now, Sir Mordaunt, to see her on the starboard tack."

"But what's the good of going north, Walton," he answered, "when we are heading well to the east, and when we know from the chart that it is all open sea that way as far as the coast of Africa?"

"Unless we have diminished our leeway," said I.

"There's no change in that, sir," interrupted Tripshore.

"Our course as we go, therefore, is southeast-by-south," said I. "Practically, then, we are steering a course parallel with the trend of the Bahama range. We are worse off even than that, for the trend of those islands is southeast. If we were certain of our whereabouts, then we might find it safe enough to lie as we go. But in this weather, and without an atom of faith in Purchase's calculations, I'm for edging away to the norrard and east'ard."

"Mr. Walton's right, sir," said Tripshore.

"Why, if you both think the yacht should be put about, let it be done," said Sir Mordaunt. "I'll not pit my wishes against your judgment."

The necessary orders were immediately given by Tripshore, whose eagerness was not a little flattering to me after the reception he had given my opinion some hours before. The helm was put up, to give the schooner plenty of way, and the brave little vessel, eased of her griping luff, began to *snore* through the water, whitening it all around until the phosphorus and the foam of it threw out light enough to enable us clearly to see the whole figure of the hull, though within the rails all was as ebony, save where the skylight and the binnacle filled a space of the midnight blackness with a golden haze and shining lines.

The men had to get the yacht round by feeling. They knew where the running gear led, and groped about until they came to the places. When all was ready the helm was put down and the flying schooner shot into the wind, her mainsail rattling like a roll of thunder, and the great main-boom tearing at its hempen bonds like an elephant straining at a lasso. In a few minutes the head-sheets were flattened in, and I went to the compass and looked at it with a feeling of relief which I even then thought, and do so still think, unaccountable, considering that there was nothing but my distrust of Purchase to make me suppose our former course a perilous one.

Sir Mordaunt did not remain long on deck. I told him he could do no good by staying; that he merely risked his health by exposing himself to the malignant damp of this lukewarm, penetrating mist; and that I should not be long in following him.

And I was as good as my word. For, after hanging about the deck for half an hour, the sight of the rich, comfortable, bright cabin, as I saw it through the skylight, tempted me beyond resistance. I waited until another heave of the lead assured me that there was nothing to be felt at eighty fathoms, and then I went below.

I believe our going below and sitting in the cabin reassured Miss Tuke. Besides, I was cheerful enough now that I had had

my way, and Sir Mordaunt was likewise heartier and brighter in manner, as though his mind took its posture from my behavior. They say that coming events cast their shadows before; but I can answer for our little company aft that not for a fortnight past had we been in a calmer and pleasanter mood. Besides, there was good news from Lady Brookes' cabin. Her spirits had recovered something of their tone; the smoother passage of the vessel had briskened her up; and Sir Mordaunt said that if the weather was fine to-morrow he hoped to have her on deck.

We were all careful to keep our conversation away from topics likely to recall what we did not wish to remember—the death of the mastiff, the water-logged bark, the terrible gale we had been struggling with. We talked chiefly of England, how strange it was to be without newspapers, and not to know what had happened in the time we had been away.

In this way passed the evening, until Miss Tuke, looking at her watch, said it was ten o'clock, and that she would go to her aunt and then to bed. Mrs. Stretton and she then wished us good-night and withdrew. Shortly afterward Norie, who never showed any disposition to linger over the grog when Miss Tuke was gone, delivered himself of a loud yawn, shook hands, and went to his cabin. Sir Mordaunt lighted a cigar, I a pipe, and we sat for a while smoking in silence, listening to the stifled hissing of the water washing along the sides of the yacht and to the straining of the bulkheads as the vessel rose and sank.

Presently, and without speaking, the baronet went to the foot of the companion steps and looked up.

"The night remains terribly dark," said he, coming back. "I had hoped to see a star. Surely such a fog as this must be very unusual here at this time of the year."

"You must be surprised at nothing that happens in the way of weather at sea," I replied. "I remember the master of a brig telling me that he once made a voyage from London to Barbadoes without meeting with the northeast trades."

"This dreadful thickness makes one think of collisions, Walton."

He filled a tumbler with brandy and water and swallowed a draught, and then sat silent, uneasily combing down his beard with his fingers, and holding his extinguished cigar, which he looked at without relighting.

"Shall you go on deck again?"

I answered, "Yes, to have a last look around."

He glanced at the skylight, as if he had a mind to go too; but, guessing his intention, I advised him to keep below—to go to bed, indeed. "The chances are," said I, "that when you wake the sky will be blue and the yacht buzzing merrily along under a bright sun to Jamaica."

"Ay," said he, "but do Tripshore and Burton know the course?"

"The schooner is in my hands," said I. "Only let the sun shine and I'll engage that Tripshore and Burton con the vessel correctly. While this fog and this wind hold we have nothing to do but to keep as we go."

He looked at me with a musing expression, and then, holding forth his hand, he said: "Very well, Walton; I'll obey your orders and turn in. I commit our safety to you and Tripshore."

I put on my waterproof coat and went on deck. It wanted twenty minutes to eleven. I thought the fog had thinned somewhat, and I crossed the deck to look to windward. Yet though the mist was undoubtedly less dense, gazing over the side was like staring at a black wall. The driving fog of fine rain made my eyes tingle, for the wind was strong, though so warm that it felt like the gushing of air from the engine-room of a steamer. Nothing of the water was visible but the boiling foam churned up by the yacht's bows thickly interlaced with long fibers of phosphorescent light. Sometimes, when a wave broke a short distance from the vessel, the flash of its foaming crest shone out through the mist, but nothing else of it was distinguishable.

Burton was in charge. I called to him and told him he must keep the schooner heading as she went. "Let her lie as close as she'll ratch," said I, "and shake it out of her. I would rather she crawled than ran, until the horizon clears. Those will be your instructions to Tripshore."

"Right, sir."

"How many men have you on the lookout?"

"Two, sir."

"Do your lights burn brightly?"

"I was forward just now, and they're as bright as the mist 'll let 'em be."

"Tell Tripshore to see to that, will you? and to keep a sharp lookout. I'd give a deal of money, Burton, to know within ten miles where we are. This fog is a bad job after our long westerly drift. Have you any notion of the currents hereabouts?"

"No, sir," he answered. "But we should be right as we go. I was looking at the chart along with Mr. Tripshore, and it shows nothen but open water to the east-ards."

"I shall be up and down all night," said I. "I may take some rest upon one of the cabin lockers, ready for a call. It may clear up suddenly, and you or Tripshore must have me up at the first sight of a star. Add that to your instructions."

We stood talking thus and flitting about the deck, stopping now and again for five minutes at a time to look ahead into the pitch-black void, straining our eyes against the needle-like rain, in the hope of catching sight of a flaw, to let us know that the mist was breaking, until eight bells—midnight—were struck. The men forward thumped the fore-hatch and bawled to the watch below to rouse out. Tripshore came aft. We heard him calling, otherwise we should not have known he was on deck.

"Here!" answered Burton.

The mate, groping his way in the direction of the man's voice, walked up against me

"Is this Burton?" says he, feeling me, as a blind man would.

"No," I answered; "he's to the left of me."

He begged my pardon, and said: "That scowbank of a steward's turned down the cabin lights. Had he let 'em be, the sheen of the skylight would have helped a man to see. It's like being smothered up in a blanket, Bill. I plumped agin the mainmast as I came along, and allow I've lifted a bump the size of a hen's egg over my right eye."

Burton repeated my instructions, and, after hanging about us a few minutes, wished me good-night and went below.

I was weary enough myself. A man usually is when he would rather not feel sleepy. The ten years I had spent away from the sea had robbed me of the old seasoning. The wet and the wind bothered and tired me. Nevertheless, I remained on deck another hour, occasionally conversing with Tripshore, but for the main part hanging over the rail, first to windward, then to leeward, vainly striving to see a fathom beyond my nose, and watching—for the want of something to rest the sight upon and relieve it from the oppression of the heavy darkness—the pallid quivering of the rushing foam alongside, until the play of it, and the shooting and throbbing of the whirling fires in it, made my eyes reel.

Even if I had not been predisposed to lowness of spirits, this spell of loneliness, and the foul, black weather, and the groaning and moaning of the invisible deep, with now and again the shriek of a block-sheave high aloft, and the hollow flap of the hidden canvas, and the numerous disturbing and startling sounds which were jerked out of the rigging and spars in the blackness overhead by the sharp jobbing and jumping of the schooner, were quite enough to depress me.

But at last my eyelids felt as if they were made of lead. I went below, removed my waterproof coat, and, putting a pillow on the locker, laid myself along, completely dressed, and ready to jump up at a moment's notice. The cabin lamps had been turned down, and yielded a very feeble light. I could have sworn I should drop asleep the moment my head touched the pillow; yet for at least twenty minutes did I lie, looking at the feeble lamps swinging to the motion of the vessel, and listening to the sounds in the cabin, and struggling to work out a kind of reckoning to myself, so that I might figure the yacht's position.

In the midst of this idle problemizing I fell into a deep slumber.

CHAPTER XII.

I WAS awakened by a violent concussion. So heavy was the sleep from which I had been aroused that I remained for a considerable space in a state of stupefaction. On my senses becoming active, I found myself sprawling on my back upon the cabin floor. I now supposed that I had been rolled off the locker by a heave of the vessel, and that the sensation of a strong concussion having taken place was due to my fall. I scrambled on to my feet, but scarcely was I upright when a terrible grinding and rending shock pitched me sideways on to the locker on which I had been lying. Men's voices were shouting overhead. I also heard the tramping of feet, the violent beating of canvas; above all, the roaring and rushing of water.

I sprang to the companion steps, and, as I gained them, there was another tearing shock—I know not how to describe it. To say that it was like the vessel going to pieces will convey no image to your mind. Rather figure your sitting in a house, and one side of it sinking suddenly a foot or two, and every joist and strong fastening cracking and shrieking, and the roof and the whole structure trembling and groaning as if the building must crash in. I stopped, struck to the very heart by the unbearable and soul-sickening sensation. At that moment I was grasped from behind. I turned, and saw Sir Mordaunt, dressed only in his shirt and trousers.

"What has happened?" he cried.

"We have either been run into or we are ashore—the latter, I think," I answered. "For God's sake get the women dressed and bring them into the cabin;" and, releasing myself from his clutch, I sprang on to the deck. As my head came level with the companion the vessel heeled over—over—over yet! I crouched down, breathless and waiting, convinced that the yacht was going. I heard the men shrieking in the blackness as they fetched away with the angle of the decks and fell helplessly into the lee scuppers.

When on her beam ends the schooner remained stationary. I knew by the bursting of the seas against her side and by the fierce sounds of sweeping water over my head that she had beaten round with her broadside to the sea, and so lay. At the top of my voice I shouted out the name of Tripshore, but it was like speaking when a gun explodes. The main-sheet must have parted, for the sail, I supposed, lay fore and aft to the wind, and the slatting of it was like the crashing of thunder. The sea to leeward was as white as milk, and the noise of its boiling was alone enough to deafen a man. Added to this, every sea that struck the weather side of the vessel boomed with a deep and hollow note, and was followed by a wild splashing and tearing of water upon the deck. Had I not kept the shelter of the companion when the vessel stopped at her sickening heel, I must have gone overboard, for a sea came pouring over the bulwarks that washed like an ocean of fire—so vivid was the phosphorus in it—as high as my waist, and tumbled down the steps in a cataract that was like to flood the cabin. I had sense enough to check this by closing the weather door and top of the companion; and there I stood, confounded, horrified, dulled, by the thundering of the bursting surges—a maddening and distracting uproar indeed.

Whilst I stood thus some one in the blackness on the starboard hand cried out my name.

"Who is that?" I shouted.

"Me—Tripshore, sir. For the Lord's sake stretch along and give me hold of your hand. I'm drowning down here." I could not see him, but I was visible to him in the faint haze of light that came up out of the companion. Rejoiced to hear his voice, I swung myself out on to the deck, and, grasping the companion with my left hand, I threw my legs wide apart and leaned down with my right arm outstretched.

"Do you see me?" I cried.

"Ay, sir; keep so a minute," he answered. And presently I felt him seize my hand.

Now that he was close, I could perceive his outline, but not his face. The deck sloped like the side of a steep hill, it was slippery as ice with the wet, and cataracts of water were incessantly rushing down it from over the bulwarks. The poor fellow could give me no help, and I had to drag him up, which, by a desperate effort, and putting forth my whole strength and will, I managed to accomplish, swinging him round into the companion, where he lay awhile on one knee, with his arm on the hand-rail and his head resting on his arm, quite spent and very nearly drowned.

All this while I heard no sounds in the cabin, and the men's voices on deck were stilled. The yacht lay dead on her side. Once only, and shortly after she had heeled over hard and fast aground, a sea raised and bumped her, and I heard the crash of timber aloft and the sound of a mighty fall, but it was too dark to see what spar had gone; and after that the schooner lay quiet, with the sea breaking against her port side and shooting high into the air over her, as was to be known by the rattling of the sheets of water when they fell into the boiling whiteness to leeward.

I said to Tripshore, "Have you your senses?"

"I'm better," he answered. "There's an ocean of water in the lee scuppers, and I was drowning in it. I feel full o' water. If I could be sick it 'ud relieve me."

"Where are the men?"

"Most of 'em drowned, I fear. Some of them have got away with the long boat."

"What time is it?"

"About half past four."

"Oh, my God!" I cried. "If the daylight would only come, that we might see where we are!"

As I said this I heard Sir Mordaunt calling my name. I went down the steps, and, turning round, found one of the cabin lamps brightly burning and the whole party—everybody who belonged to our end of the vessel—standing at the table, which alone prevented them from slipping down the cabin floor. Full of hurrying horror as that time was, I could yet find a moment to wonder at the supernatural calmness of Lady Brookes. She was as white as marble, but I could not question that she had her senses; and though she may not have known that at any instant the yacht might crumble to pieces under our feet, yet she surely comprehended that our peril was of the direst kind, that we were shipwrecked, lying broken and storm-swept upon some nameless reef, amid the blackness of a howling night.

Both Mrs. Stretton's and Miss Tuke's faces wore rather an expression of consternation than horror. Now and then Carey uttered a low moan—every time the water thundered on the deck she made that noise—otherwise no sound came from the women. Their silence, indeed, was almost shocking to me. In Lady Brookes I should have foretold a behavior so different, so distracting, that her rigid posture and stony face smote me like a prophecy

mmediate death. It seemed to take all hope of life away, as he bitterness of death had passed from her and the others, and were waiting to die.

"What has happened, Walton?" said the baronet.

"The yacht is on her beam ends ashore," I replied. "Purse's reckoning was diabolically wrong. I always feared so—I had hoped to escape this."

"What are we to do?" he said.

"We can do nothing until daylight comes. It draws on for o'clock, and we shall have the dawn shortly. Let us pray God the vessel will hold together. I think she will. She is ng, and can stand this buffeting unless she pounds."

"She is motionless," exclaimed Norie, in a broken voice. "I e not felt her bump for some time."

"Is there no way of finding out where we are?" cried Miss e, wildly and suddenly. "Can we not get help from the re?"

"It is as black as ink on deck," I replied. "There are no ts—there is no land to be seen."

A heavy sea had broken over the vessel and poured over the above us, and a bright flood came bursting down the comion ladder.

Lady Brookes threw her arms up, and Sir Mordaunt pressed fiercely to him; but she remained as silent as a statue.

I called to Tripshore to close the companion and come down. I oned that if any of the crew were alive they would be in the castle. Be that as it was, we could not let the cabin be wned. Already the water was as high as the starboard lockand the cabin was small enough to be quickly flooded.

Tripshore descended with a faltering motion. No one but myhad known he was on top of the steps. His clothes were aming, his sou'wester had been washed off his head, and his was pasted on his forehead, throwing out his blanched face making him look more like a corpse than a man. There stood canter of brandy on one of the swinging trays, and with the ost difficulty I managed to seize it and give it to Tripshore, ling him put his lips to it and swallow a dram. In truth, bed and confounded as my mind was by the sudden horror ur condition, I yet preserved sufficient presence of mind to see a vital value in this sailor if the wreck held together until ight, and that our lives might depend upon my reviving him his half-drowned state.

I gathered hope when I found the yacht lying immovable. That was bilged, I knew by the slow rise of the water to leeward in cabin; but, as I say, the rise was slow, and much of the water was there had come down the companion; and I guessed if leak did not drain in faster than it now did it would be a good past daylight before the water came high enough to drive us of the cabin.*

The worst and most dreadful part was the heavy concussion he seas which struck the windward side of the schooner and her trembling like a railway carriage drawn swiftly. After y blow there would be a pause, and then down would come water in tons weight, smashing upon the deck overhead and ning in a loud roar over the bulwarks on the other side. ry instant I expected to see the companion carried away, or skylight dashed in. But, mercifully for us, these fixtures l, so nobly and stoutly built was that vessel down to the meanf her appointments.

What our position was at this time I will leave you to imagine. heel of the yacht was certainly not less than fifty—aye, and e more than fifty—degrees. The swinging trays lay with lee rims hard against the upper deck. So acute was the slope that nothing but the interposition of the table prevented us from falling headlong down the incline. In the light of the lamp we stood looking at one another, all in silence, save but for the occasional screams or moans of alarm which broke from Carey, and once or twice from Miss Tuke, though never from Lady Brookes, when a wave beat upon the deck and ran snarling and hissing away, like a score of disappointed wild beasts. I shall never forget the expression of anguish in Sir Mordaunt's face. I can recall no hint of fear in it. It was bitter grief and horror, as if *he* were to blame for the frightful peril that, with amazing swiftness, had confronted the motionless, staring woman he clutched to his heart.

As for *her*, her passivity was as though a miracle had been wrought. I thanked God for it, for I knew how the agony of that time would have been heightened by her screams and terror. Yet it was wonderful that she, whom a thunder-storm had driven into hysterics, and who had fainted over the narrative of a disaster, should be standing there now as if all sensibility had fallen dead in her. Perhaps, indeed, this may have been the case. Suddenly Tripshore made a movement.

"Where are you going?" I asked, sharply.

"To see if anything can be done for our lives," he answered.

"Stay where you are!" I cried. "If you show your head above the companion you'll be washed overboard; and I won't have the doors opened. When the dawn comes you'll see it on that skylight. What *can* be done now, man? It's pitch-dark still. Could we see to launch a boat? Would those breaking seas allow us to enter a boat? Stay where you are, I say! Here, at least, we have a refuge."

"Can nothing be done?" exclaimed Miss Tuke, with a dreadful note of despair in her voice.

"Yes, yes," I answered. "Everything that can be done *shall* be done. But it will be madness to leave this cabin until the dawn comes to let us know where we are and what we can do."

"Have you no rockets to send up?" cried Mrs. Stretton.

"They'll be drowned by this time, sir," said Tripshore, addressing me. "They're in the forepeak. There'll be no getting at 'em."

"They would not help us," I said. "They would not show in this mist; though could we come at them we might fire them through the companion."

"I'll try and get 'em, if you like," said Tripshore; "but unless the bulkhead can be broke through I shall have to go on deck to get down the fore hatch."

"No; don't risk that," exclaimed Sir Mordaunt. "The dawn will be here soon. Mr. Walton is right; we can do nothing in this blackness."

Nothing; nor did I regret the want of the rockets, for from the first I never doubted that we were aground upon one of the Bahama shoals, miles out of sight of inhabited land, and that there was no eye but God's to behold our signal of distress, though we should make a blaze as big as a burning city.

The steady posture of the yacht and my confidence in her strength kept my heart up, and I endeavored to cheer my companions by pointing out that the wind might drop with the rising sun, and that, though we had lost two boats, we had another large enough to contain us all. Likewise, that we need not doubt of being able to make our way to one of the numerous islands which lay scattered broadcast upon these seas, where we should get the relief we stood in need of.

Sir Mordaunt asked Tripshore where the rest of the crew were. The man answered that he feared some of them were drowned, but he could not say for certain. He supposed those who lived were sheltering themselves in the forecastle. In this manner we stood waiting to see the dawn brighten upon the skylight windows, listening with terror to the weary crashing of the seas, feeling with

*e hold was full of water, and the draining into the cabin was, no doubt, ch the cabin floor.

unspeakable dismay the dreadful occasional quivering of the hull, and I, at least, scarcely dared to hope that the vessel could much longer withstand the cruel hammering of those pounding surges.

CHAPTER XIII.

THE light seemed a long while coming, but at last the dawn stood upon the skylight glass. I immediately clawed my way along to the steps and ascended them, followed by Tripshore. I opened the starboard companion door cautiously and peered forth. The fog was all gone, and the air clear, but the sky very cloudy. The light was but a glimmering gray as yet, but it broadened and sharpened quickly whilst I stood gazing, and then the whole wild picture of ruin and desolation was clear before me.

The yacht lay with her bows very high in the air and her stern correspondingly deep, and hence it was that all the seas which struck her rolled their volumes over the quarter-deck, leaving the forecastle comparatively free; that is to say, the falls of water there were much less frequent than they were aft, and a great deal less weighty and dangerous. A short distance away on the starboard beam trended a low line of dark shore, the full extent of which I could compass with the eye. It was, indeed, as I immediately perceived, a low, flat island, with a little space of rising land down in the east quarter of it. Between the yacht and the near beach was a tract of white water that boiled and leaped in pinnacles and spears, as you may see water play on shoals. It was like milk for whiteness, and was raging a long way both ahead and astern of the schooner, whose starboard bulwarks lay over into it, and it constantly washed in a heavy smother of froth over the rail in such a manner that, had the heel of the yacht been less sharp, the whole deck from the fore hatch would have been under water. As it was, the flood stood as high as the bulwark rail, and extended as far inboard as the companion in which I stood, and, in this lake of water, that was constantly being lashed into fury by the torrents pouring over the weather side, lay four drowned men, one of whom was Purchase. The foremast was gone about ten feet above the deck, and the wreck of it lay over the side. Every movable article had been swept overboard. The boat we carried amidships had disappeared, and the boat that hung at the davits had been broken in halves by a blow from a sea.

This is but a cold description. But with what agony of soul did I contemplate this dreadful scene of ruin, the drowned bodies, the horrible white water utterly cutting us off from the land, and, above all, the stormy look of the sky, that threatened a gale of wind!

Sir Mordaunt had left the women and crawled up the companion steps; but, being unable to see, owing to Tripshore and me blocking the companion, he asked me if I could perceive land, and what our position was. I was too affected to answer him, and motioned Tripshore to descend a few steps, so as to give the baronet room to see for himself.

My eye now lighted on the figure of a man standing on the beach, as close to the water as the heavy breakers would permit. He flourished his hand and shouted to us, but though I could hear his voice very faintly, his words were absolutely indistinguishable.

"Look!" I cried. "If that island is not inhabited, then yonder must be one of our men. For God's sake, Sir Mordaunt, pluck up your heart, and help me to think how to act. Tripshore, come on deck. There's one of our crew ashore."

To make room for him, I got upon the deck, and squatted to leeward of the companion to shelter myself from the flying water.

"It's Bill Burton, I believe, or Tom Hunter—one or the other," exclaimed Tripshore. "Oh, Lord! if we could only chuck him the end of a line, he'd be able to drag us ashore."

This, maybe, was the one hint I needed to set my mind struggling. The look of the sky was a clear intimation that there must presently come such a sea as would break up and scatter the schooner as her boats were already scattered. Watching my chance, I crawled to the weather bulwarks and crept along on my hands and knees until I came to the forecastle, where, as I have said, the water was not flying heavily. This did not bring me closer to the man ashore, but I could stand erect here without great peril of being swept overboard, providing I held on tightly, and so could make him see me.

He saw me the moment I stood up, as I perceived by the manner in which he hallooed and flourished his arms. At the top of my voice I shouted to him, "Can you hear me?"

The wind blew my voice to him, and he immediately made an affirmative gesture.

"If we can manage to send you the end of a line, look out for it, and make it fast," I bawled.

He again raised his hand.

By this time Tripshore had joined me, and, looking toward the companion, I perceived Sir Mordaunt and his wife and Norie on the steps, watching us.

"Tripshore," I cried, "we must get a rope's end ashore somehow. How is it to be done? If we made a line fast to the half of that boat," pointing to the broken boat at the davits, "would the wind drift it ashore, think you?"

"Ay, sir, it might—it might. Stop!" he shouted. "I have it! Where's the dog?"

"Yes!" I cried, the full significance of his meaning flashing upon me before the words had died on his lips. "If the beast is living he may save our lives."

I ran my eyes eagerly over the decks, but the sea had torn up every fixture, with the exception of the companion and skylights, and there was not a corner where the dog could have lain hid.

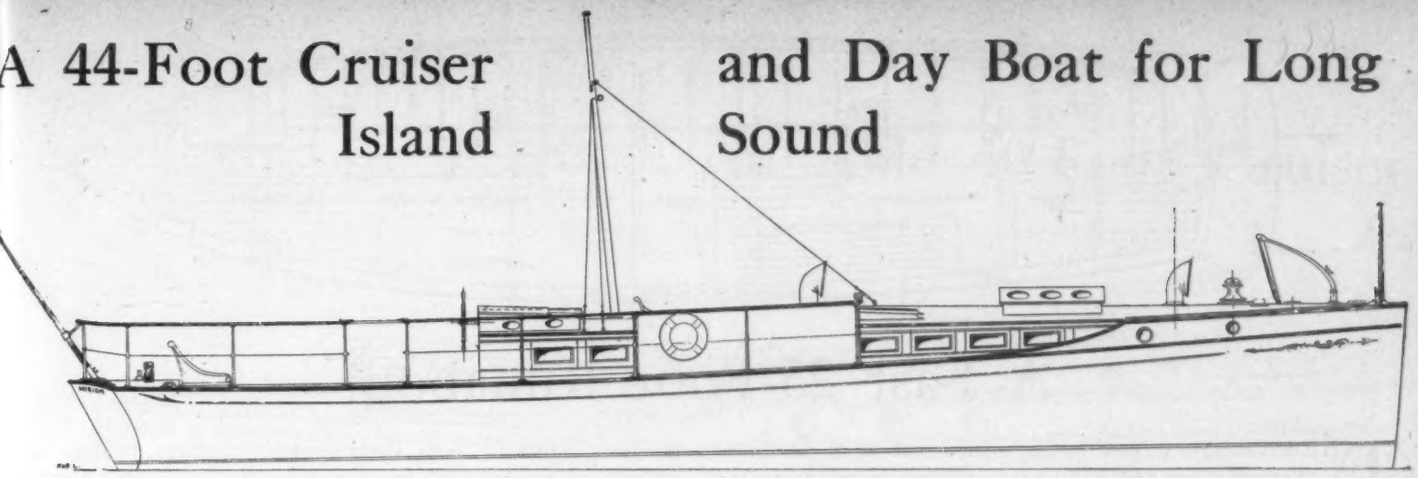
"Have you seen your dog?" I cried to Sir Mordaunt; but at that moment a heavy sea washed over the after part of the deck, and some shrieks from the women told me that a quantity of water had filled the companion, driving down Sir Mordaunt and th others.

"If you'll look for the dog in the fo'c's'le, I'll seek him in the cabin," exclaimed Tripshore, and he dropped on his knees and crept along under the bulwarks. The forecastle was open and was half full of water. It was wonderful that the bulkhead that separated the forecastle from the after part of the vessel stood the weight: had it given, the cabin would have been drowned at once. I knew that nothing could be alive here. I peered to see if there was anyone in the upper bunks, but nothing was to be seen but the water and some soaked bed-clothes hanging over the edges of the upper bunks.

This choking and gurgling and dark forecastle so sickened my heart that I stood holding on to the ladder and looking with helpless horror, like a man malignantly fascinated. But a sudden twitch of the vessel shocked me into my senses again, and I scrambled on deck, persuaded that our end was at hand. I was scarcely on the forecastle, however, when fresh life was given me by the sight of Tripshore approaching with the dog. He had the animal by the flesh of the neck, and came along like an animal himself; that is to say, on his knees and left hand. I immediately pulled out my knife and cut away some of the thin running gear which lay across the deck. They were topgallant sheets and jib halyards, long and light. I knotted them and other pieces of stuff together until I calculated they made a length of over sixty fathoms. I hitched one end over the dog's neck, taking care that the animal should have plenty of freedom, and yet that the hitch should not slip over his head, either. He was streaming with water, and seemed to understand our peril. I patted and stroked

(Continued on page 452.)

A 44-Foot Cruiser and Day Boat for Long Island Sound



THE plans, by J. Murray Watts, of Philadelphia, Pa., which we publish herewith, are particularly interesting, not only by reason of the graceful lines of the boat, but also of the arrangement of her interior layout. This boat is being built for Mr. Sydney F. Ward, of New York City, for use on Long Island Sound, where she will be used principally for day cruising and for week-end trips; and for these purposes she is admirably laid out, having plenty of deck room and good accommodations for a small party below.

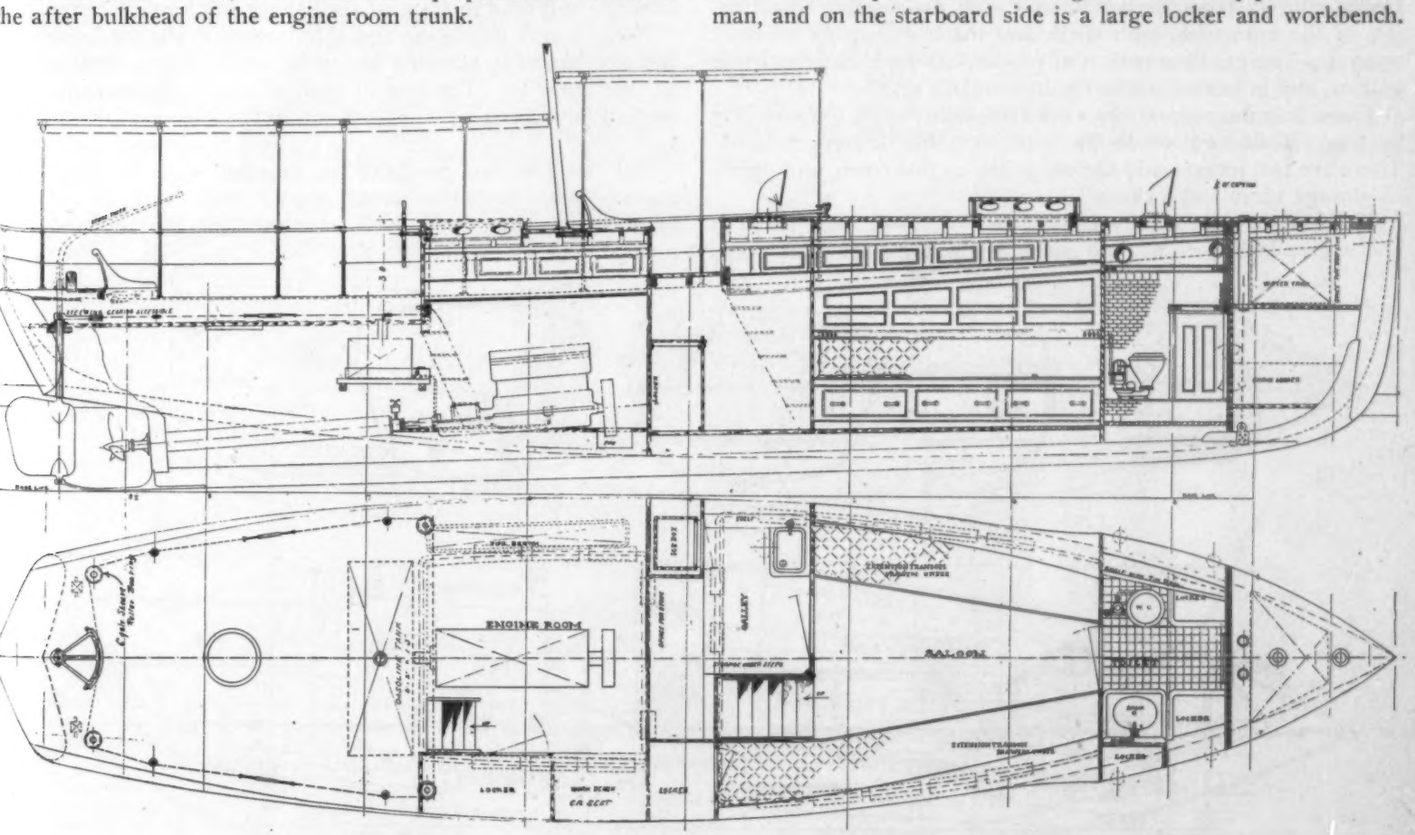
The principal dimensions are: 44 feet length over all, 42 feet on the waterline, 10 feet 4 inches beam, with a draft of 3 feet 2 inches.

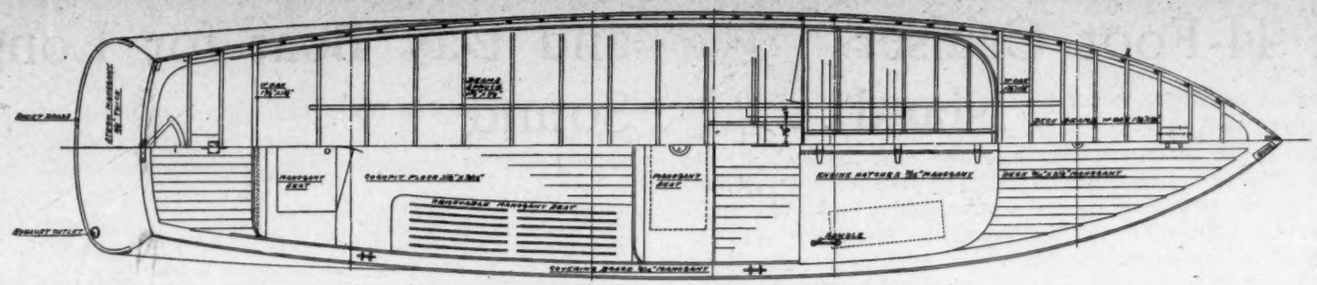
The boat has a straight stem, with a raking, Normand V stern, and a raised deck forward extending nearly to amidships in the form of a trunk cabin. At this point a bridge deck extends across the boat with a settee on top of the small after cabin, located over the engine room. Aft of this is a large, shallow cockpit, with a broad settee at the after end, the steering being done from the forward end, where there is a perpendicular wheel on the after bulkhead of the engine room trunk.

The owner's accommodations are all forward and are separated from the engine room by a sound-proof bulkhead, insuring quiet and absence of all odors or fumes of gasolene. Entrance to the saloon is by a companionway from the bridge deck. On the port side, to the left of these companion steps, is a large galley, with sink, stove and plenty of good storage space under the steps just mentioned.

On either side of the saloon are extension transoms, forming berths at night, with drawers beneath. One of these transoms is 12 feet long and the other 9 feet. Forward of the saloon is a large tiled toilet room with all the usual appurtenances, including large lockers or chiffoniers with mirrors. Still further forward are the water tank and chain lockers. Besides the oblong plate-glass windows and port lights, there is a skylight over the saloon, insuring plenty of light and ventilation.

Entrance to the engine room is by a small companionway on the starboard side of the after trunk. Here is located a 25-horsepower motor with gasolene tank under the cockpit floor just aft of it. On the port side of the engine room is a pipe berth for a man, and on the starboard side is a large locker and workbench.

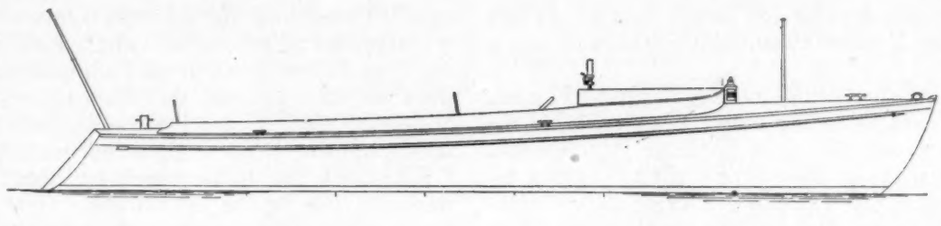




A Fast 25-Foot Runabout

THE advantages offered by the small runabout of more than average speed and with good carrying capacity are fast becoming appreciated in those localities where there is sheltered water, and for this reason the plans shown herewith of a 25-foot runabout, designed in the office of A. P. Homer, 88 Broad Street, Boston, Mass., for Mr. R. K. Eaton for use on Lake Sunapee, N. H., will prove of interest. This boat, while designed for a fast runabout, also makes a comfortable boat for day sailing, and should prove dry and able.

The principal dimensions are: Length over all, 25 feet; beam, 5 feet 5½ inches; draft, 2 feet.



The engine, a 20-horsepower, 4-cycle, rotary-valve motor, is located under a hinged hatch forward, where it is protected from the weather, and will drive the boat a little better than 16 miles an hous. It is controlled entirely from the helmsman's seat, the steering wheel being of the auto type, with spark and throttle controls mounted upon it. The gasolene tank is of copper, having a capacity of 20 gallons, and is located under the helmsman's seat.

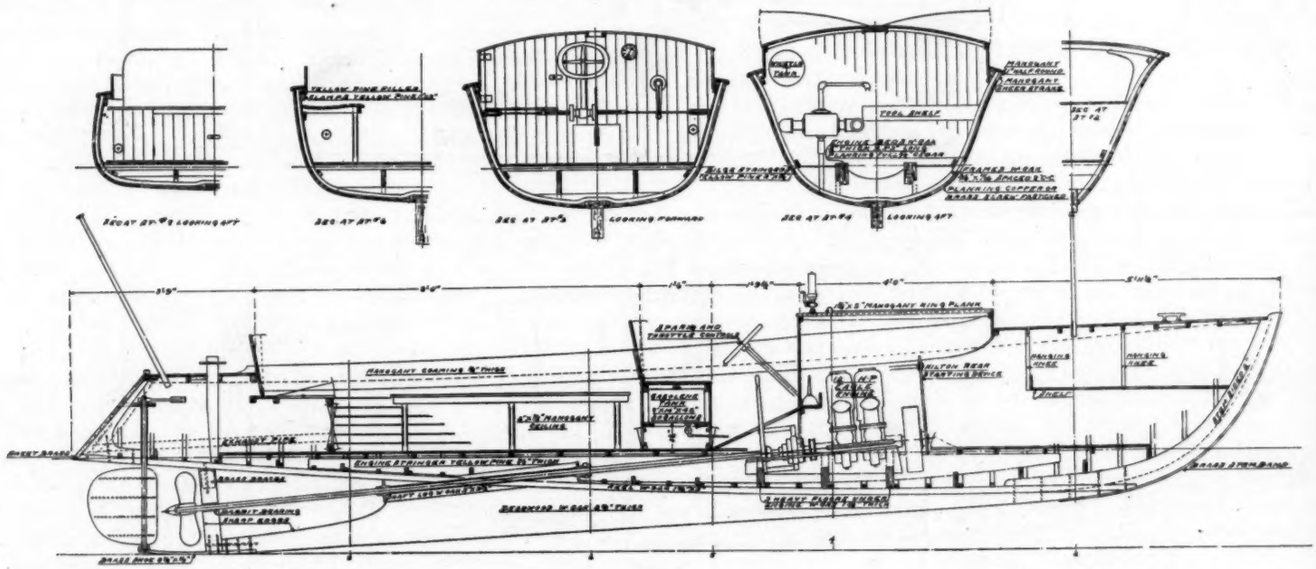
The side seats in the cockpit are removable, so that chairs may be used, if desired, while the after seat has lockers beneath. There are tool lockers and shelves in the engine room, and plenty of storage room and lockers.

The boat is substantially constructed with oak keel, framing and engine beds, yellow pine stringers and clamps and cedar planking, while all decks, sheer strakes, coamings, hatches, seats, cockpit, ceiling, etc., will be of mahogany. The deck fittings will be of polished brass, and the fastenings of copper or brass screws. The skeg is designed for protecting the propeller from damage if the boat is run aground and to make it easy to haul her out. She is also designed to have a short turning radius.

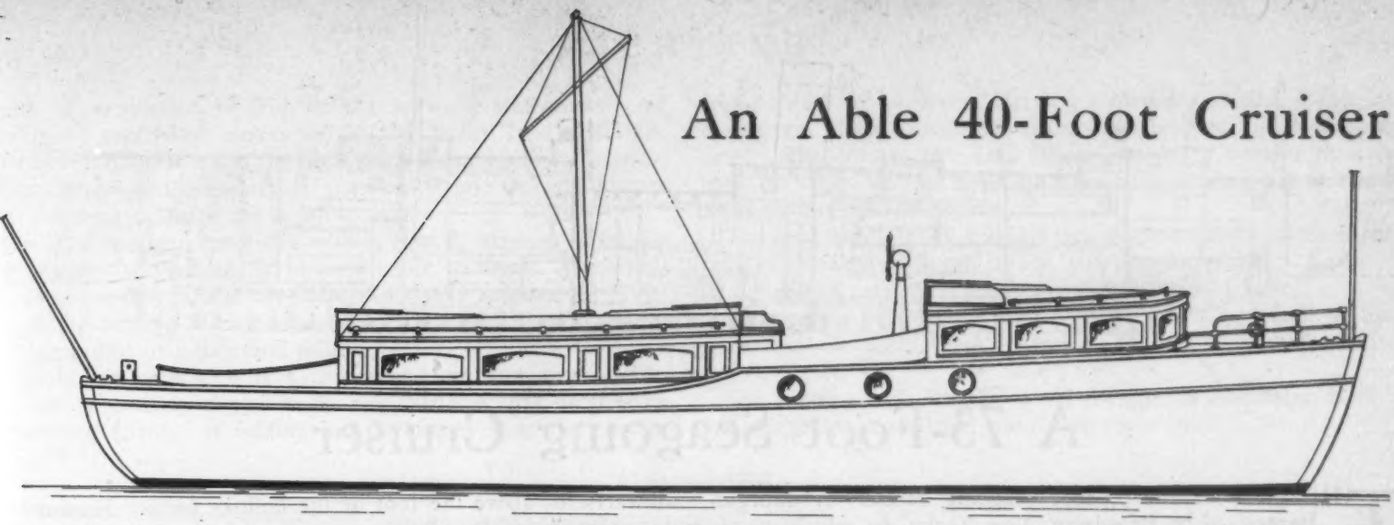
The boat has a graceful, rounded stem, a flat floor aft, which should prevent any tendency to squat when being driven, and a stern transom that rakes forward, the latter being of mahogany in one piece, with the edges bound with sheet-brass. There is good flare forward, ending in a pronounced flam on top, the deck being carried out fairly wide over the forward sections. The plans show the detail of construction very fully. There is also a rear starting device, allowing the engine to be cranked from the bulkhead in front of the helmsman's seat.

She is a very handsome and able-looking craft, the lines being fair and graceful, allowing her to be easily driven, and yet giving her stability. The cost of such a boat is not excessive, and she can be built for a sum well within the means of the average man.

The designer has produced an excellent type of small boat, and one that is bound to become popular, combining, as she does, more than average speed with good carrying capacity and comfort.



An Able 40-Foot Cruiser



THE accompanying plans of a bridge-deck 40-footer, designed by the Bayonne Launch Company, of Bayonne, N. J., are interesting on account of the shape of the hull nd the amount of accommodations she offers for a boat of this ize, practically every foot of room being utilized. She is a big oat for her over-all length, with good beam, the greatest breadth eing well aft of amidships. Her general dimensions are: Length over all, 40 feet; length waterline, 37 feet; beam, 9 feet inches; draft, 3 feet.

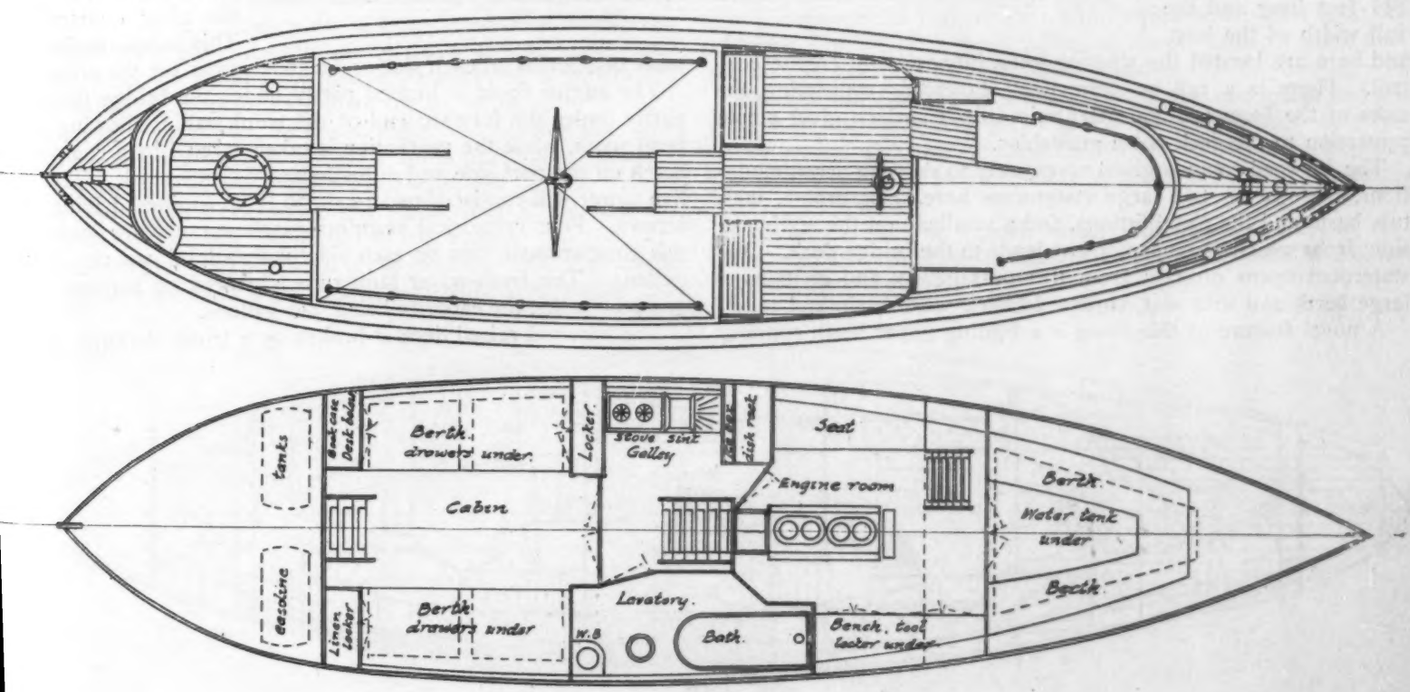
She is a bridge-deck boat, the bridge being formed by the after nd of the raised deck. Forward of this bridge deck is a trunk abin over the forecastle or forward cabin. This house is low, ith oblong plate-glass windows, giving plenty of light and entilation below. Access is had to this compartment by a companionway on the port side leading from the bridge deck. These teps lead into the engine room, the engine itself being located nder the bridge deck, while a bulkhead with swinging doors separates this room from the living quarters of the forward cabin, he latter containing a berth on either side, with a water tank nder the floor.

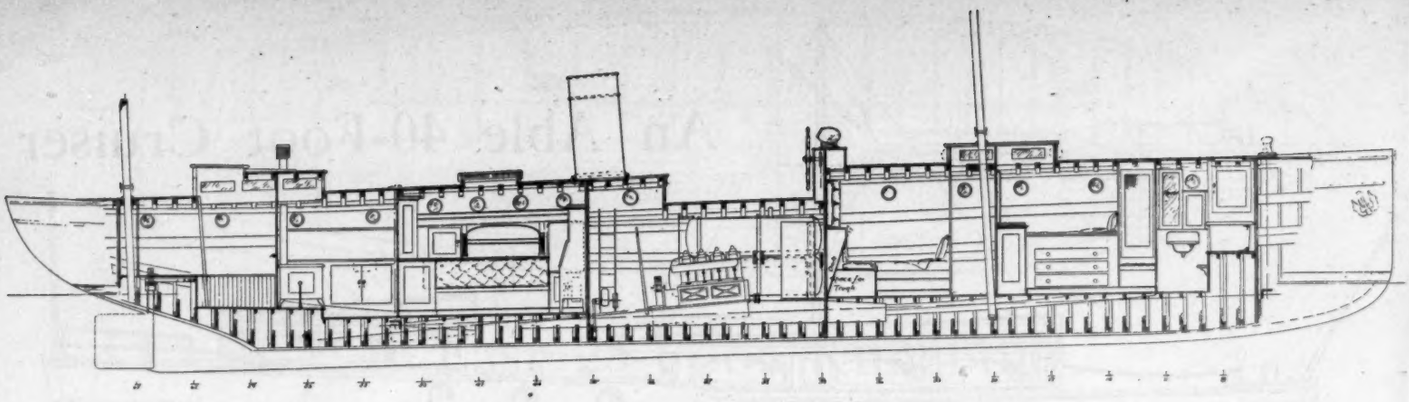
On the starboard side of the engine is a work bench and ool locker, while on the port side is a seat, which can be used as a erth for a paid hand. There is also a door leading from this compartment giving access to the galley and the after cabin.

Over the after cabin, or main saloon, is another well proportioned deck house, in which are two companionways leading below, one from the bridge deck and the other from the cockpit aft. In this cabin is a large saloon, with a transom berth on either side with drawers underneath, linen locker, book-case, desk, and a large hanging clothes locker. Forward of this compartment, and separated by swinging doors, is a large galley on the port side, with stoves, sink, ice box, etc., while on the starboard side is an extra large toilet room and lavatory, containing a bathtub, wash basin, etc.

From the passage between this bathroom and galley the forward companion steps lead to the bridge deck. The cockpit floor aft is well above the waterline, while the cockpit itself is large enough to accommodate several wicker chairs and has a permanent seat at the after end.

The gasolene tanks are cylindrical, and are located under the cockpit floor. She is powered with a 20-horsepower, 4-cylinder engine, which is expected to drive the boat 12 miles an hour. The steering gear and engine control are on the bridge deck directly over the engine, while on the forward deck there is a windlass, there being plenty of room here to handle ground tackle.

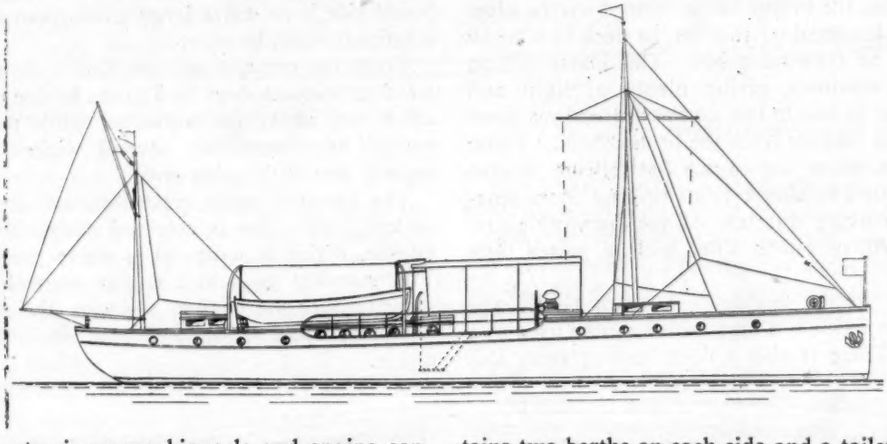




A 73-Foot Seagoing Cruiser

THE plans of the 73-foot seagoing cruiser by Morgan Barney, of 29 Broadway, New York City, which we reproduce herewith, are of more than ordinary interest, both by reason of the large amount of room available below and the arrangement of her accommodations and deck plans. Designed primarily for use on the Great Lakes and along the coast, particular attention was paid to her seagoing ability, and her lines indicate that she will amply fulfill these requirements.

She has a straight stem, with a rounded fore-foot, and a long keel, with rather a sharp run, the bearings being carried well aft, and a rounded canoe stern. She not only has a raised deck extending nearly to amidships, but the sides are carried up aft, making a raised or quarter deck aft, which extends 21 feet forward from the stern post, ending in a trunk cabin running to the bridge deck, with a wide alleyway on either side. The bridge deck itself is 8½ feet long and the full width of the boat, and here are located the steering gear, binnacle and engine control. There is a rail on permanent stanchions connecting the sides of the foreward and after raised decks, which gives ample protection to the deck room amidships.



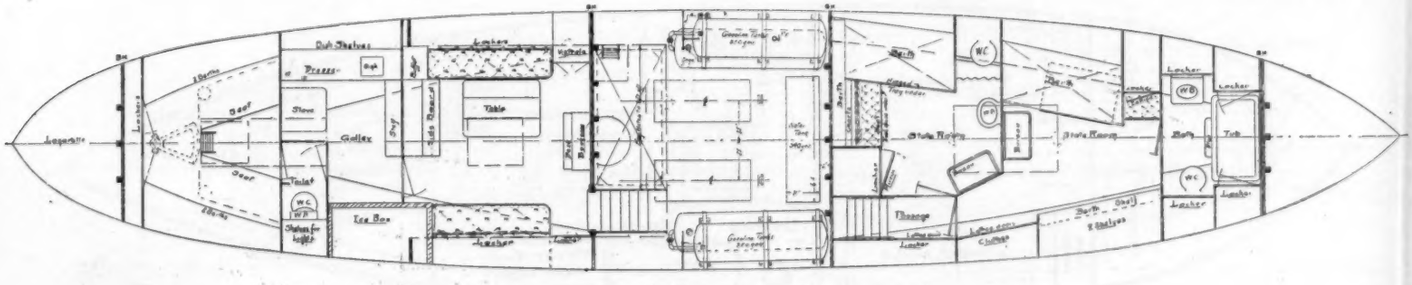
The forward cabin is given up entirely to sleeping accommodations, there being two large staterooms here, a bathroom, with tub, basin and the usual fittings, and a vestibule on the starboard side, from which a companionway leads to the bridge deck. One stateroom opens directly from this passageway and contains a large berth and sofa seat, bureau, lockers, wash basin and toilet.

A novel feature of this room is a folding upper berth running athwartships above the foot of the built-in berth. Forward of this room is the other stateroom, extending the full width of the vessel, with a full-length berth on one side and a transom berth on the other. This room also contains a large clothes press, bureau, lockers, etc., and makes a particularly attractive room for the owner.

The after quarters contain the saloon and galley, while the crew's quarters are in the extreme stern. Entrance to this after cabin is by a companionway from the after end of the bridge deck, the steps leading directly into the saloon. This compartment contains a transom on either side, with lockers and an alcove back of them, a large sideboard, buffet, dining table, desk and bookcase. Opening aft from this saloon is a large galley, the full width of the boat, with stove, large ice box, dresser, sink, etc. There is a companionway leading to the crew's quarters from the after quarterdeck. This compartment contains two berths on each side and a toilet room for the crew.

The engine room is located partly under the bridge deck and partly under the forward end of the trunk cabin, allowing good head room, while the ventilation is taken care of by a companion hatch on the port side and a good-sized dummy stack. The motive power will consist of two 4-cyl., 30 H. P. engines, driving twin screws. Four cylindrical seamless gasolene tanks are located in this compartment, two on each side, with a total capacity of 700 gallons. The fresh-water tank runs athwartships between these gasolene tanks, the capacity being 340 gallons.

The forward raised deck is broken by a trunk skylight, giving



lenty of ventilation to both of the forward staterooms. An wning on stanchions covers the bridge deck. Two masts are rovided running through the deck, with a step in the keelson, so hat sails can really be carried, the smaller one being a jigger- hast for heaving-to or for a riding sail.

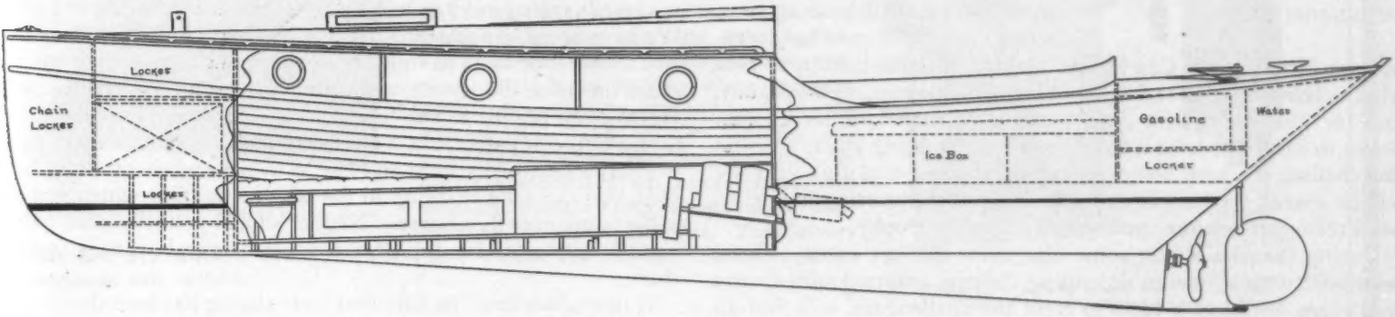
She was designed especially with a view to keeping down the ze of crew to two men, or, at the outside, to three. The wind- ss is power-driven, and aft there is a power capstan for hoist- ng in the boats. The gasolene capacity is sufficient to give a ruising radius of a thousand miles.

The bridge amidships is particularly large and comfortable, nd can be entirely closed in by side curtains that drop from he awning frame. A folding sash is hinged from the awning frame at the forward end, carrying a plate-glass light, 5 feet by 2 feet, and there are similar frames on the port and starboard sides. The construction and fittings are much heavier than is usual in yachts of this size, and have been worked out to stand up under the hardest service.

The boat, as designed and laid out, ought to make an excellent craft in which to go to sea, or for long-distance racing. A power tender will be carried on davits aft of the stack.

Her principal dimensions are: Length over all, 73 feet; on the waterline, 68 feet; beam, extreme, 13 feet 6 inches; draft, 4 feet.

She is being built for Mr. W. H. Briggs, of Rochester, N. Y., and she will be completed and delivered in June.



A 30-Foot Cabin Dory

THE 30-foot, raised-deck dory shown in the accompanying plans from the Atlantic Company, of Amesbury, Mass., is a further development of the dory type for pleasure urposes which has proved very acceptable to the boating public.

The principal dimensions are as follows: Length over all, 30 eet; length waterline, 26 feet; extreme beam, 7 feet 4 inches; raft to bottom of skeg, 2 feet 3 inches.

The cabin is large and roomy, providing sleeping accommoda- ons for two people on comfortable transom berths, thoroughly pholstered. At the forward end a toilet is installed, which can e screened from the remainder of the cabin by a curtain, which n a small boat is a better arrangement than having it partitioned ff by a bulkhead, thus cutting down the air space.

Just aft of the transom, on the starboard side, is a locker, with torage for cooking utensils and place for a small oil or gasolene tove and a sink, which is covered flush when not in use. Aft of his is a full-length locker extending to the roof of the boat for onvenience in hanging up articles of clothing.

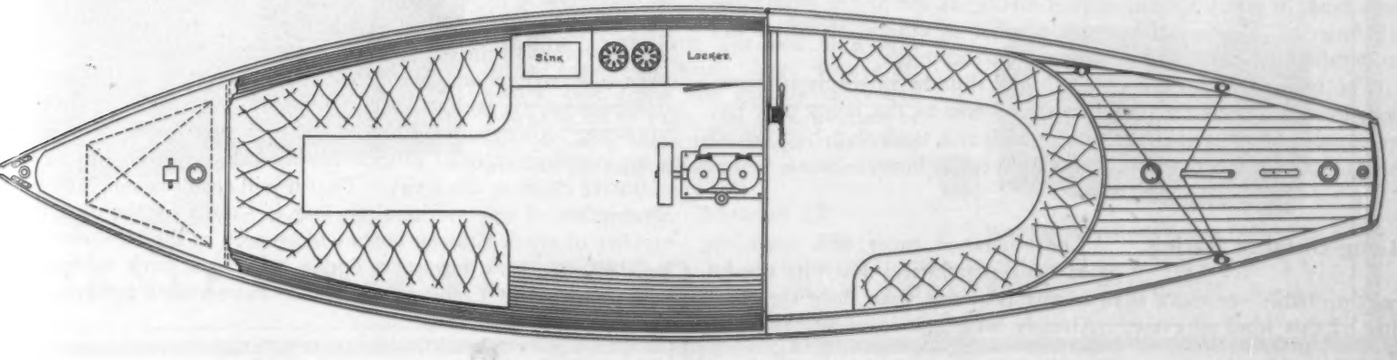
Forward of the cabin bulkhead is the gasolene tank, with ample ockers above and below it for charts, etc., while still further forward is a chain locker, accessible through the deck. The cabin is ventilated by means of a skylight and a cowl ventilator, furnishing plenty of fresh air. The side ports are solid, insuring against leakage at these points.

The cockpit arrangement is conventional, with side seats and an ice box under the after seat. Under the rear deck, aft, a reserve gasolene tank of 25 gallons and a fresh-water tank of copper, blocked in tin, are installed.

The power equipment consists of an Atlantic Special 10-horse-power motor, with reverse gear and Perfex waterproof ignition system. Control is on the bulkhead at the steersman's hand, and the reverse gear is also within easy reach.

The Florida East Coast Railroad Company are using two of these boats at Long Key and Palm Beach, and orders were recently placed with the Atlantic Company's New York office for two additional boats to go to Lake Champlain for this summer's cruising.

The boat is built as a stock model, although variations of the cabin plan may be made to suit the owner's individual needs by the Atlantic Company.



EDITORIAL

Published by the Yachting Publishing Co.; Oswald Garrison Villard, President; Herbert L. Stone, Secretary and Treasurer

Present Outlook for the British International Races. As reports come from the other side of the water, giving us some line on what we shall have to meet in the way of speed in order to retain the Harmsworth Cup in this country, it is interesting to note what is being done here for the defense of the cup. Fortunately, and for almost the first time, plans have been laid far enough ahead to insure at least a satisfactory effort being made to meet the challengers with some degree of success, and this year we will be spared the humility of appearing at the starting line without a team competent to put up a race for the trophy.

During the past winter some nine boats that we know of have been built with a view to defending the cup, and undoubtedly the trial races, to select a team to meet the challengers, will find an even larger fleet assembled when the starting gun fires. Practically all of these boats are hydroplanes. In fact, we know of no displacement boat that is being built either here or abroad for this event. The hydroplane, as it is being developed, is the natural evolution of the speed boat, many of the drawbacks and condemning features of the older type of hydroplanes having been eliminated in the newer creations. Also, in the matter of horsepower great strides have been made, especially in the matter of engine weight per horsepower, and the startling figure of 800 horsepower in a 40-foot boat is now an assured fact. Comparing this with the 240 horsepower of Dixie, the 400 horsepower of Pioneer and the 110 horsepower of Zigarella last year, it will be seen what tremendous strides in this respect have been made in a short eight months.

From the other side a speed of just under 50 knots, or 57 statute miles an hour, has been claimed for the challenger, Maple Leaf III, and there can be little doubt as to the reliability of this claim, although there is a vast difference between a short half-mile spurt at this rate and the same sustained speed over a 30-mile course.

To meet this speed there is another Dixie, from Clinton Crane's designs, from which we have every reason to hope for great things; two hydroplanes for Mr. J. Stuart Blackton, from different builders, and with approximately 600 horsepower each; one for Albert E. Smith from designs by the Electric Launch Company; one for Commodore James H. Pugh, of Chicago; a new boat, in which Commodore Melville, of the Motor Boat Club of America, is interested, and a number of others, on which not very much information has yet been forthcoming.

The trial races for the event should thus be intensely interesting, even allowing for the fact that some of the boats may not eventually be ready at that time, which is a trick that high-speed boats built for international contests seem to have.

Long-Distance Racing. Long-distance races still seem to hold their popularity, and this season will probably see more than in any previous year since the coming of this kind of event. Already long grinds of varying distances and character have had dates assigned to them, and undoubtedly will attract many entries, particularly those from one to three hundred miles in length, along the coasts or Great Lakes. We have been particularly fortunate in all our long-distance races so far, but one boat having been lost in such an event; but because this is so it does not mean that you can afford to relax your vigilance in regard to the type of boat which is entered and her fitting-out, equipment, etc. Don't try to go in one of these races without a seaworthy boat and one in which, when properly handled, you can take anything in the way of weather which you are liable to get over the course. Neither should you stint your equipment in any way, for the best is none too good when going off shore.

If in a power boat, be sure that your engine has been thoroughly overhauled and is in first-class shape, and also that you have some one aboard who understands it thoroughly and is competent to repair any breakdown that is liable to occur. Also see to it that your tool equipment is such that you can get at any part of the engine or mechanism in case of necessity. Safety is due as much to attention to all these details as to the handling of the boat; and while some boats are on record as having entered these events in a notoriously unfit condition, it must be borne in mind that the Fates may not be as kind in the future as they have in the past.

The Outlook for the Season. Now that the active boating season is hard upon us (a few of the dyed-in-the-wool shellbacks being already overboard and chopping the ice away from their running gear every time they start out), everyone is interested in knowing what the prospects are for the season. As far as we can judge, they are, from every standpoint, excellent, and the season promises to see more boats in commission and more people afloat than ever before. This is largely due, of course, to the wonderful increase in the number of power boats and the popularity which this branch of the sport has attained. With the exception of a few racing boats, practically all of the new craft this year are of the out-and-out gasolene type, and, with the coming of the "monkey-wrench" sailor into his own, racing events and fixtures are being more and more extended to include this type of boat. In fact, the chief racing events of this season promise to be between high-speed power boats. Particularly is this so in the West, where they have awakened within the last few years to the opportunities that the inland lakes and rivers offer, and, with characteristic "hustle," they have organized clubs and associations and boomed the sport of racing on a scale that has never been attempted before. From every point of view this is an excellent state of affairs, for the tide-water sailors have no exclusive claim to the sport. That it will result beneficially in the elimination of any sectional feeling is shown by the fact that a number of crack Eastern boats will be seen at the Western regattas this year, and, beyond a doubt, will come back with several new tricks up their sleeves which they have picked up west of the Wabash.

Don't run YOUR Boat this Year without a Patterson Wireless Battery Holder!

Of course you need a Waterproof Battery Box!—that's admitted by everybody now-a-days! Don't say.—"My batteries are in the cabin and never get wet in there," for you must realize every foggy night or rainy day when the cabin feels damp, that you are losing Battery energy, unless they are in a Waterproof Cabinet—

Model GL-6. 6 Cells in Series—Single Row

In THE PATTERSON WIRELESS DRY BATTERY SYSTEM a SCREW TOP DRY BATTERY CELL without wires or binding posts, screws into one solid Hard Rubber Plate, automatically making all connections. This Hard Rubber Plate forms a Solid Substantial Waterproof cover for the Battery Box, and as all contacts are moulded solid into this Rubber Plate, no possible loosening of connections, bad contacts, trouble from dampness, or anything of this sort is possible. The Battery Cells are SUSPENDED from the Plate and do not rest on any surface where dampness can collect.

Patterson Screw Top Cartridge Coil "Jump Spark"

Model CJ-6. Jump Spark Coil and Cells, all in one Waterproof Case.

Renewing a Set of Batteries with the

PATTERSON WIRELESS DRY BATTERY SYSTEM

Model C-6. 6 Cells in Series.

is as easy as putting in a half dozen Incandescent Lamps — and though done quickly, it can't be done wrong by the most inexperienced person; individual cells may be tested with Ammeter without removing Cells from Holder.

Cabinets are ABSOLUTELY WATERPROOF even though all under water, for over entire inside surface of Cabinets a heavy seamless layer of Neptune Semi-Rubber Compound is flowed, and between Plate and Cabinet is a Soft Rubber Gasket. Outfits have substantial leather Carrying Strap.

Columbia Screw Top Dry Cell, regularly made by National Carbon Co.

MULTIPLE and COMBINATION PLATE OUTFITS have every advantage of the BEST Storage Battery—with none of the objectionable features, such as delay in charging—sulphating—corrosion and acid fumes.

MULTIPLE and COMBINATION OUTFITS (see lower right-hand cut) will positively give three to six times the mileage of Single Series Outfits and should be used for all Multiple Cylinder Engines.

EMERGENCY CLIPS are provided so old style Binding Post Cell can be used any time Screw Top Cells are not at hand.

Model A-4. Strip Type—to be screwed up under locker or deck.

Model CL-6. 6 Cells in series—Single Row.

A Wireless Battery Holder will not only maintain a Set of Batteries at HIGHER AMPERAGE, but will, in a year or so, save the Motor Boat Owner its entire cost from the greatly increased life each set of Cells will give, because of the Holder's scientific design for their protection and economical maintenance.

Send for Bulletin 37

Model GU-6. Combination Plate.

STANLEY & PATTERSON, 23 MURRAY ST.—27 WARREN ST NEW YORK CITY, N. Y., U. S. A.

Driftwood from Along Shore

The First Annual Reliability Cruise Contest of the G. L. Power Boat League for the Scripps Trophy

THE first annual cruise of the Great Lakes Power Boat League will begin at Detroit, August 7, 1911, and end at Buffalo August 14, or at such times as the committee shall finally release the boats. The course will be to the Rushmere Club on Lake St. Clair, by way of Chatham, where the first night will be spent; across the lake to Mt. Clemens, Mich., for the second night; to Put-in-Bay for the third day; from Put-in-Bay to Toledo, by way of Point Pelee, for the fourth lap; from Toledo to Rocky River, Ohio, for the fifth night; across Lake Erie to Rondeau, Can., for the sixth stage; to Erie, Pa., for the seventh night, and to the finish at Grand Island, Buffalo, a total distance of about 650 miles.

The objects of this cruise are: First, to encourage and foster a better feeling and acquaintance among the power boat men in various cities of the Great Lakes, and, second, to promote a contest for the benefit of the sport in general; to encourage a high standard of boat building, engine building and of accessories, and to endeavor to prove the reliability of the various types of boats and engines. The conditions of the deed of gift of the trophy follow:

First—The trophy shall be known as the Commodore Scripps Cruise Trophy.

Second—It shall be competed for annually by members of clubs affiliated with the Great Lakes Power Boat League, the Western Power Boat Association, or the American Power Boat Association. The winner shall deposit the trophy with his club, and that club shall give to the Great Lakes Power Boat League, or its successor, a satisfactory bond with surety, or sureties, in the sum of $2,500 (twenty-five hundred dollars) for such custody.

Third—The distance of the cruise shall be not more than 1,200 miles, nor less than 600 miles, and shall take place anywhere on the Great Lakes or connecting waters; provided, however, that the start shall be made from Detroit at least once in every five years.

Fourth—Boats to be eligible shall be of the cruiser type, not under 30 feet in length, and must have a speed of not less than 8 miles per hour. Each boat shall carry or tow one or more dinghys, capable of carrying entire party and crew, and shall have sleeping and cooking accommodations for the minimum crew, which shall be one additional man for every 10 feet or fraction thereof in length in excess of 30 feet. A 30-foot boat must carry a minimum crew of two.

Scripps Endurance Cruise Trophy.

Fifth—Each entry must be accompanied by a fee of at least $50. In the event of failure to start the entry fee shall be forfeited.

Sixth—The boat shall be operated by the owner or an operator approved by the commission.

Boats—Open to seaworthy boats not over 100 feet over all nor under 4[illegible] feet over all. A seaworthy boat is a substantially built, full decked vessel having engine and living accommodations housed in and being equipped with all the tackle and appliances necessary to enable her to perform a long passage in open water.

Rating—Will be calculated under the 1911 rule of the American Power Boat Association as modified to fit cruising boats.

Time Allowance—Shall be figured according to the American Power Boat Association time allowance, the distance for computation for allowance to be on a basis of 670 nautical miles.

Propelling Power—Any form of internal-combustion engine may be employed for propulsion purposes.

Fuel—The race committee, comprehending that those entering the race have a thorough knowledge of the fuel necessary to make the passage, does not specify any quantity, but the same must be sufficient to complete a distance of at least one and one-half times the distance between New York and Bermuda. No ingredient shall be used to increase the power of fuel.

Sails—Boats must be equipped with suitable spars and rigging to carry sufficient sail to give them steerage-way in a moderate breeze. This sail may be spread in any shape, but the total area of canvas must not exceed in square feet the square of the over-all length of the vessel divided by eight as a constant. This sail may be carried at all times.

Stores and Water—Stores and water sufficient for thirty days must be carried. This will be strictly enforced.

Crew—No boat will be allowed to start with less than six men aboard, one of whom shall be a practical navigator, one a practical engineer, and at least half of each crew must be amateurs.

Entries—Entries will be received up to one week before the start of the race. There will be no entrance fee.

Measurement and Inspection—All contestants must be measured by the official measurer not later than one week previous to the start. All contestants must report to the race committee and official measurer for the purposes of inspection and measurement at a time and place to be announced hereafter.

Protests—Protests covering violations of sailing rules must be made in writing within twenty-four hours after finish of race. Protests regarding ratings must be filed in writing with the race committee previous to the start of the race.

Start—The start will be made Saturday, June 17, at 2:00 P. M., from a point in Gravesend Bay to be announced hereafter.

Note—The committee reserves the right to reject any entry if, in its judgment, the boat is unseaworthy or unsuitable for long-distance racing, or is deficient in any particular.

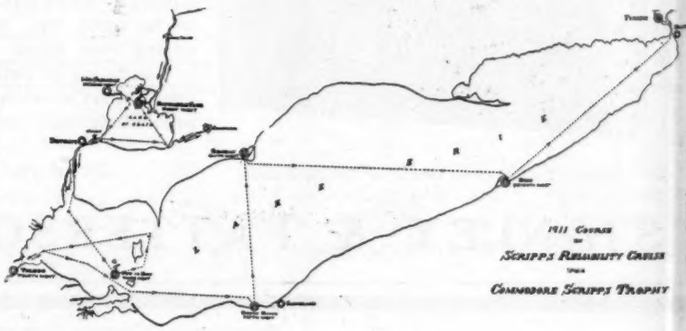
The James Gordon Bennett Challenge Cup is a trophy presented for

Bermuda Race Conditions

The special committee of the Motor Boat Club of America have reframed the conditions to govern the annual motor boat race from New York to Bermuda. This race will be started on Saturday, June 17, and this year is open to boats 40 to 100 feet over-all length. This change in the conditions which enables good-sized boats to compete is a wise one. The new conditions are as follows:

Race—From a starting line established in Gravesend Bay, New York, to a stake boat off St. David's Head, Bermuda, placed by the Royal Bermuda Yacht Club.

Prizes—The possession of the James Gordon Bennett Challenge Cup to the boat finishing first and $1,000 in cash. A second prize if three or more boats start, and a third prize if five or more boats start.



VALENTINE'S VALSPAR

"The Varnish That Won't Turn White"

When your boat is ready for the Varnish, see that you get an absolutely waterproof spar varnish and a foul-proof bottom paint.

The only perfectly waterproof spar varnish made is Valspar—the spar varnish that won't turn white when left in water any length of time.

The fact alone that Valspar won't turn white in water shows that moisture has absolutely no effect upon it, that it is perfectly waterproof.

Valspar is the only spar varnish that will remain unchanged indefinitely—the only one that never deteriorates in color, brilliancy, durability and hardness.

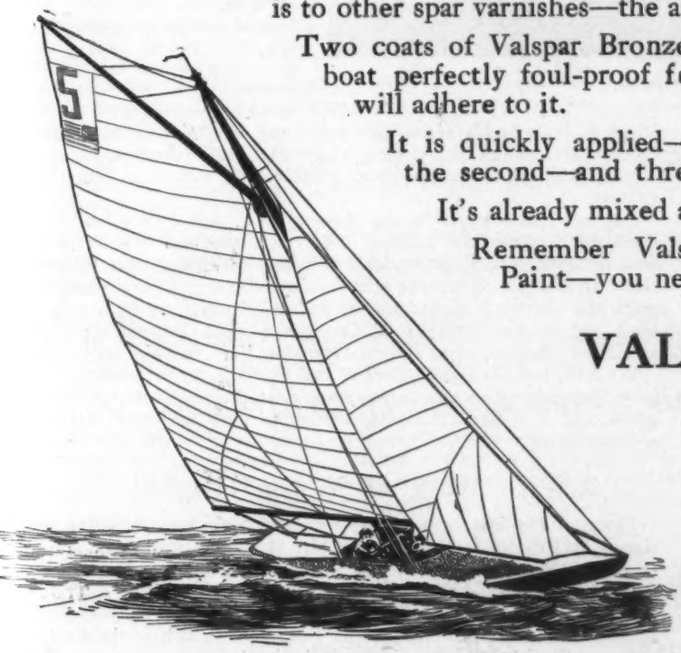
Valspar dries the quickest and hardest of all spar varnishes and is as nearly transparent as glass, when applied.

We will gladly send to anyone who is disposed to investigate a piece of japanned tin varnished on one end with Valspar, on the other end with one of the best known Spar Varnishes.

Put it in water. The Spar Varnish end will turn white. But *we will pay you* $1,000.00 *in cash* if the Valspar end turns white.

VALSPAR BRONZE BOTTOM PAINT

Valspar Bronze Bottom Paint is to any other anti-fouling compound made what Valspar is to other spar varnishes—the absolute perfection of its kind.



Two coats of Valspar Bronze Bottom Paint will keep the bottom of your boat perfectly foul-proof for a whole season—no kind of sea life can or will adhere to it.

It is quickly applied—three hours after the first coat you can apply the second—and three hours later it will be dried hard and smooth.

It's already mixed and will not harden or turn green in the can.

Remember Valspar Spar Varnish and Valspar Bronze Bottom Paint—you need them for your boat.

VALENTINE & COMPANY

New York—Chicago—Boston—Toronto—London
Paris—Amsterdam

VALENTINE'S VARNISHES

W. P. FULLER & CO

San Francisco, Sacramento, Oakland, Stockton, Los Angeles, San Diego, Cal.
Portland, Ore., Seattle, Tacoma, Spokane, Wash.
Sole Agents for Pacific Slope and Hawaiian Islands.

annual competition, and must be won three times by the same owner before awarded permanently.

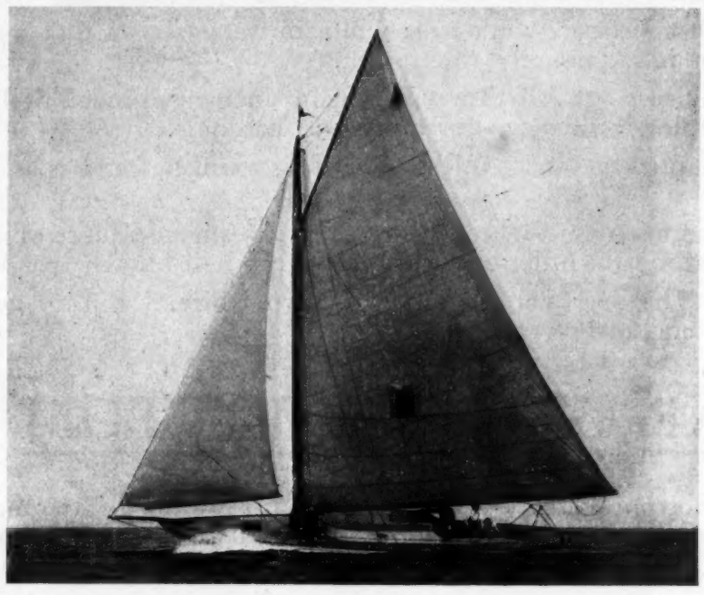
The first race for this trophy was held in 1908, and was won by Ailsa Craig, of the Motor Boat Club of America. The second race, in 1909, was won by Heather, of the Shelter Island Y. C. Third race, in 1910, was won by Eronel, of the Bensonhurst Y. C.

Bermuda Race for Sailing Yachts

The 1911 Bermuda race for sailing yachts will be sailed from Boston to Bermuda this year instead of from New York, as has been the case for the past two years, and from the present outlook there will be more interest in the event and more entries than for some years past. Three years ago the race started from Marblehead, there being six starters that year. This is the longest and most interesting of the long-distance events for sailing craft, it being a test of navigating ability as well as of seamanship that cannot be equaled by any other ocean race in these waters.

There will be two classes provided this year—for boats over 50 feet waterline length and those under 50 feet.

Harold S. Vanderbilt is the first to make a formal entry of his yacht, the schooner Vagrant, for the Bermuda race. Vagrant won this race last year. Bryan S. Permar, chairman of the regatta committee of the Boston Y. C., is sure there will be at least six starters, and these he thinks will be the schooner Sunshine, of New York; Margaret, Seneca, Vencedor, Shiyessa I and Acushla II. Yachtsmen interested have made the request that the race be given an early start, so the chances are that the date originally named, June 3, will be the final selection. The Boston Y. C. will have official charge of the start and will decide upon where the starting point will be. Chairman Permar is of the opinion that the most suitable starting point is between Thompson's and Castle Island. There was some talk of starting the race off Rowe's Wharf, but this would not be feasible for several reasons. First, it might interfere with shipping; secondly, there would be little room for manœuvring, and the wind would be shut off from the yachts, or would come puffy from different quarters owing to the dock buildings. The starting point that Mr. Permar suggests would give plenty of room in any wind that might be blowing and a fine chance to observe the start either from Castle Island or from the pier at Marine Park in South Boston.



Virginia.

Hollis Burgess recently wrote to Mayor Fitzgerald, of Boston, suggesting that the city should offer a prize for the Bermuda race, and the City Council has voted a $500 appropriation provided there are six starters.

Entry blanks and the full conditions of the race (which are the same as prevailed in last year's race) may be had by addressing Hollis Burgess, of the race committee, 15 Exchange Street, Boston, Mass.

Joint Ocean Race from Atlantic City to Fire Island and Return

Arrangements have been completed for a big long-distance cruiser race to be held under the joint supervision of the Yachtsmen Club of Philadelphia and the Ventnor Yacht and Motor Boat Club of Atlantic City, to take place Saturday, July 8.

Atlantic City has been selected for the starting and finishing point of the race, which will be run from a stake-boat off Young's Pier to Fire Island and return. Three handsome trophies will be hung up for the winners.

From the ratings of the big cruisers which are almost sure to be contestants the finish will be a close one, and with fair weather the fleet ought to cross the finish line sometime Sunday, in full view of the thousands of boardwalk strollers. Entries problematical, but almost certain, will be the Caliph, Vice-Commodore Brigham's champion; the Isabella II, Commodore Thompson's dark horse; Vincent III, Rear Commodore Hall's pet; Pasadena, Capt. George Dotterer's "one best bet," all from Ventnor Club, and Ilys, Commodore Whitaker, and others flying the colors of the Yachtsmen Club of Philadelphia. In addition the Cape May Yacht Club, Sea Isle City, Seaside and Island Heights Yacht Clubs will all be represented.

On Friday night the Ventnor Club will give a smoker to the visiting yachtsmen and contestants, with an entertainment at the club house on the Thoroughfare. Plans for this feature are already under way, and the local club is striving to make this race a memorable event in yachting history.

Halifax Race Conditions

Chairman Bentley, of the regatta committee of the Brooklyn Y. C., has made the following announcement of the motor boat race from Gravesend Bay to Halifax, for which Commodore Hearst has offered a prize:

"The Brooklyn Y. C. contemplates holding a gasolene power boat race from its club house, Bensonhurst, N. Y., to Halifax, N. S. (distance about 600 miles), on July 22, 1911, provided there are sufficient entries.

"Boats measuring between 45 and 80 feet, over-all measurement, will be eligible to start. If there are sufficient entries the starters will be divided into two classes. Boats measuring between 45 and 60 feet, over-all measurement, will race in one class, and between 60 and 80 feet, over-all measurement, in another class. If there are less than four starters in each division all boats will race in one class.

"The course will either be direct to Halifax (outside) or else through Long Island Sound to Provincetown, Mass., where a stop will be made of sufficient time for boats to take on gasolene and stores and thence proceed to Halifax. Valuable prizes to be donated by Commodore William Randolph Hearst will be offered.

"There will be offered a first prize, consisting of a valuable trophy in each class, and a cash prize of $1,000 to the winner. If there are five starters which finish there will be a second prize, and for seven or more starters which finish a third prize

"As this race will probably be one long to be remembered, and the committee already has assurances of a large number of entries, it urgently requests replies and entries as early as possible."

The Record of a Ten-Year-Old Boat

It seems to be the common opinion that a racing boat becomes outclassed and out-built in a year or so, and while this is undoubtedly true in many cases, we have had several examples recently of boats ten years old or over cleaning up the prizes against the best that subsequent years have produced. A case in point is that of the 25-footer, Virginia, built by Herreshoff ten years ago, and after having been laid up three years on the Sound, bought by Mr. Hollis Burgess, and raced in Massachusetts Bay last summer against the fastest 25-footers in that vicinity.

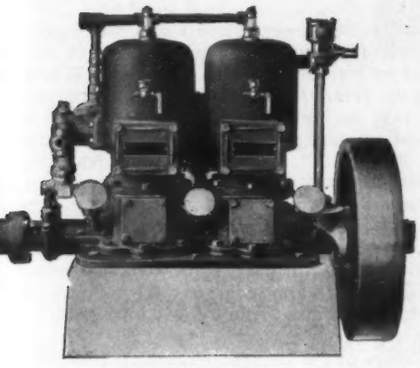
Out of fifteen starts in the Boston Y. C. and Inter-Club Association races the Virginia took thirteen firsts, one second and one sixth. She also won the Boston Y. C. championship in the first rating class, winning every race. In addition to this she won the Corinthian Y. C.'s mid-summer series prize, the Quincy Y. C. trophy for its annual run from Quincy to Marblehead, and the Corinthian Y. C. Cup in the small class for the night ocean race from Marblehead to Boston Lightship, Eastern Point, and return.

We have had occasion before to call attention to performances of boats built a decade or so ago in racing against the new boats of the last few years, and it is particularly interesting to note how well many of them are still doing.

Work at Morris Heights

The new 165-foot twin screw, steel and tobin bronze steam yacht, designed by Charles L. Seabury for Mr. M. C. D. Borden, N. Y. Y. C., is rapidly nearing completion at the works of the builders, the Gas Engine & Power Company and Charles L. Seabury Company, Con., Morris Heights, New York City, and was launched on April 21. Thirty-five miles per hour has been guaranteed for the Sovereign, which is the name of the new yacht. Capt. Charles Conk will be in charge.

The new twin screw 138-foot steel motor yacht building from Mr.



2-Cylinder Motor
inch bore, 4 inch stroke, develops 4 H.P., drives
8 to 20 ft. boat at speed of 14 to 18 miles per hour.

There is Only One Ideal Marine Motor for You

The Wayne Motor for Pleasure and Business

THE engine you install in your motor boat should have the four water craft engine essentials—Reliability, Power, Simplicity and Economy.

If you own a boat, whether equipped with an engine or not, you, Mr. Reader, are vitally interested in motor boat engines.

You do not care how we build these engines, as long as they are correct, and what we claim for them:—"It's what will our motor do for YOU" that interests you.

If you are a lover of the water and motor boating, send at once for our beautifully illustrated 1911 Marine Catalogue of

Wayne Motors

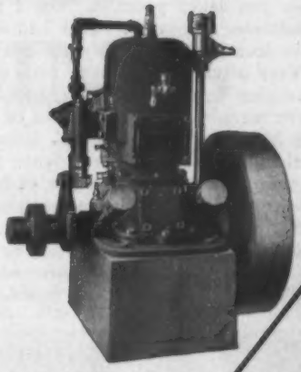
Reliability? We can tell you of Wayne Motors that have been in constant use for years, can tell you of motors that have been run for eighty hours without stopping; in fact every motor that leaves our factory is run twenty-four hours before we ship it. So much for Reliability; how about the power?

The leading engineers of the University of Michigan have tested and used in actual service the Wayne Motor. They have the highest regard for the Wayne and have found that the power is far greater than our horsepower rating.

Simplicity? You'll hardly believe what we say when we state that the Wayne has only about one-third as many moving parts as the ordinary motor. It has large hand hole plates so that all parts are instantly and easily accessible.

Wayne Motors are very economical, the fuel consumption being unusually low. Every ounce of compression and every particle of gas is used, returning full power for the fuel consumed, thus preventing carbonization.

The Wayne is a two-cycle-three-port motor, made in two types, the one and the two-cylinder. All parts are of standard design and interchangeable. The bearings are exceptionally large, die cast babbitt and accurately bored. The Wayne Motor is fully equipped and ready for installation in any boat.



1-Cylinder Motor
4-inch bore, 4-inch stroke, develops 4 H.P., drives 18 to 20 ft. boat at speed of 6 to 10 miles per hour.

OUR ADVISORY ENGINEERING DEPARTMENT

WE HAVE created an Advisory Engineering Department for the benefit of persons interested in motor boating. This department is maintained as a bureau of information directed by motor craft experts, who make it their business to scientifically and practically answer all questions regarding your boat, either concerning the engine or the hull. Feel at liberty to ask this Department for any information you desire without the slightest obligation.

Fill in the attached coupon and forward to us.

The Wayne Motor Company

308 Jefferson Avenue - Detroit, Mich.

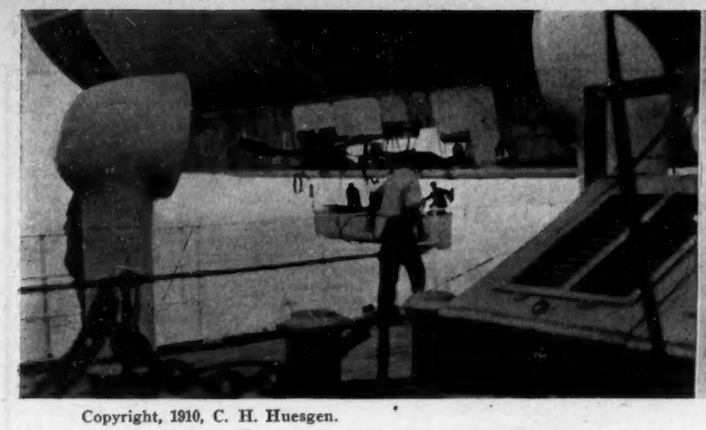
THE WAYNE MOTOR COMPANY,
308 Jefferson Ave. Detroit, Mich.

GENTLEMEN: Please send me a free copy of your 1911 Marine Catalogue and question blank, on which I can make requests for information from your Engineering Department

NAME.....

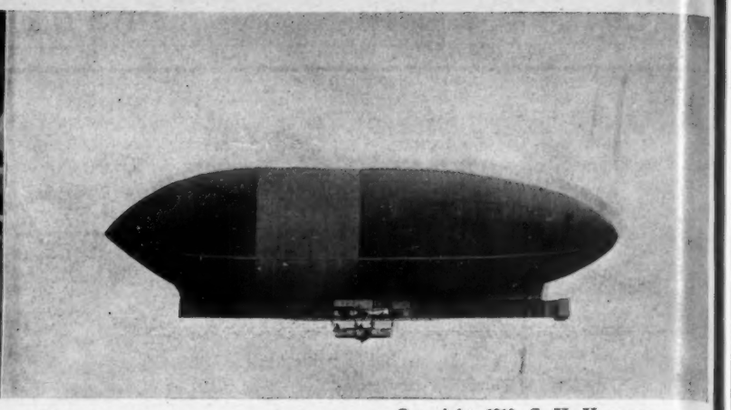
ADDRESS.....

.....



Copyright, 1910, C. H. Huesgen.

Airship America, from deck of Trent, just before lifeboat was lowered.



Copyright, 1910, C. H. Huesgen.

The airship as she drifted away from the Trent.

Charles L. Seabury's designs for Mr. Morton F. Plant at the same yard, is progressing very rapidly. This boat will be fitted with two air-starting and reversing "Speedway" motors.

Mr. Carl G. Fisher's new 90-foot motor yacht Raven is almost completed. This boat has two air-starting and reversing Speedway motors.

Mr. Albert Y. Gowen's new 77-foot twin screw motor boat Speejacks is completed, and will be launched at an early date. This boat has two six-cylinder Speedway motors installed of 200 horsepower each. Both Mr. Fisher's and Mr. Gowen's yacht will be used on the Great Lakes.

The 42-foot raised-deck cruiser Tsana III, built for Mr. Herbert W. Warden, was shipped March 16 to Havre, France. The boat will be used in that vicinity for a short time by the owner, and then shipped to Lake Geneva, Switzerland. A four-cylinder, 40-horsepower Speedway engine is installed.

Mr. A. B. Waring's new 65-foot motor boat for service on Moosehead Lake is coming along well. Two six-cylinder, 60-horsepower Speedway engines will be installed.

The Psychological Moment

There is a species of repartee known as "Doorstep" repartee, in allusion to the many clever and witty things we might have said to dazzle our fellow man at some social gathering, but which never come into the mind until one is leaving, and actually outside the door. It characterizes that capricious quality known as "Opportunity" to the past generation, which we call nowadays "The Psychological Moment." And while it is true that you may not recognize the old adage, "Opportunity knocks but once at the door," in its modern guise of "The Pyschological Moment," how often, after taking a photograph of some scene, incident or personage, have you asked yourself, "Did I take it at the right moment? Were all conditions favorable? If I had waited a fraction of a second, would I have secured a better or more interesting picture?"

Very often events justify your doubts. I had an experience of this sort returning from a trip to Bermuda on the steamship Trent, the trip being made memorable by the rescue of the Wellman airship America.

I had used all my film in Bermuda, so that the return trip found me without a single film, and when the airship loomed up on the northern horizon, the pocket flashlight of her wireless operator spitting signals to us through the murk of a dawning day (for it was quite early when the America was first sighted), I realized that the psychological moment was rapidly approaching.

One of my fellow passengers had a roll of six exposure film which, on account of his poor camera outfit, he was afraid to sacrifice himself. He gladly turned this roll over to me, however, and I was then ready to take six records of what proved to be an incident unparalleled in the history of mankind—the rescue of an airship at sea by a steamer. Where should I begin? What would be the *greatest* moment of this extraordinary scene? Remember, I could only take six pictures, and could not afford an error of a fraction of a second in exposure on account of light conditions. Pandemonium encircled me; on all sides were the harsh jangling of signal bells, shouts of command and all sorts of noises; and over all the hissing sputter of the wireless controlled by its electric tongue the entire situation. At one time the steamer, with engines stopped, lay passive and still, the grey, cigar-shaped dirigible, like a wounded bird, hovering over her sometimes near (too dangerously near) the great smokestacks. At another time we were going at a 15-knot clip after the balloon, which the variable wind would sweep to leeward. And all this in the dim light of a foggy morning.

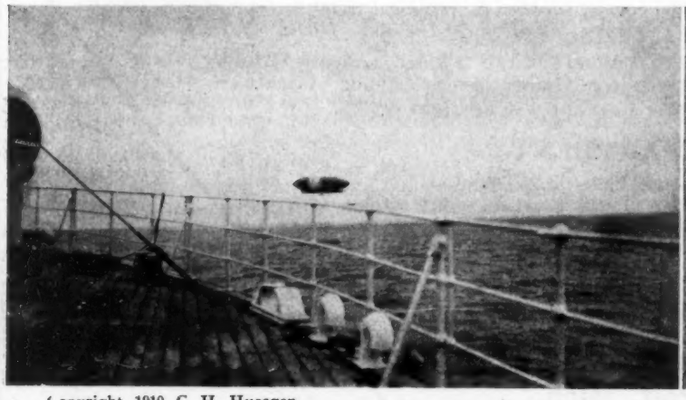
I had just taken one picture of the occupants climbing into the lifeboat, which was attached to the main structure by means of patent davits. I saw them fumbling with the catches, but before I had time to change the film IT happened; the "Psychological Moment" had *arrived;* old "Opportunity" had pounded on the door, and was gone! From a height of about 15 feet down came the lifeboat—occupants and all—and for a second or two a boat, with human beings in it and not a drop of water touching it, hung between sky and water. Then with a splash it struck the water, careened to one side, and righted itself.

Only two of my six films were left, and while I succeeded in taking six very good pictures, I often wonder why some sixth sense didn't warn me when the psychological moment actually arrived.

The result of my experience taught me the necessity, while on tour, of always keeping a supply of film or plates on hand, even on the return trip. It also taught me the value of having a first-class photographic equipment, for had I *not* had such an equipment it would have been impossible to have taken the views I did. Many of my fellow passengers, though owners of cameras, were unable to get satisfactory pictures on account of having cheap or inferior outfits, which proved inadequate on account of atmospheric conditions.

Incidentally, I might mention that the camera I used in taking these pictures was the 3A Folding Pocket Kodak, fitted with a Steinheil Orthostigmat lens, speed F 6.8, focus 6½ inches, and a compound shutter, working from one second to 1/200 second. The pictures were taken with an exposure of 1/25 second, with the lens at F 6.8, excepting the one on the airship itself, which was taken at an exposure of 1/10 second.

CHARLES H. HUESGEN.



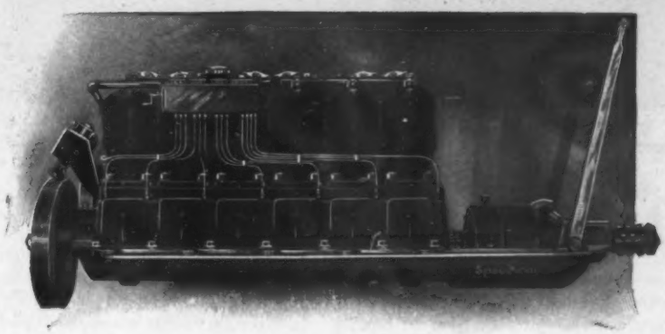
Copyright, 1910, C. H. Huesgen.

Copyright, 1910, C. H. Huesgen.

The rescue of the airship America by S. S. Trent.

PRE-EMINENT SPEEDWAY GASOLINE ENGINES

The Up-to-date Dependable Engine



Adapted To Any Service

Not A Fair Weather Engine

—But an engine that stands by and ready under all conditions. ¶ It's built by experts but it does not require experts to run it. ¶ Do you know that the "SPEEDWAY" engine is designed and constructed at the largest Yacht and Launch Building Plant in the World? ¶ Our vast experience in building Torpedo Boats, Gun Boats, Yachts, Launches, Working Boats and Marine Machinery has given us practical knowledge as to what is required of an engine.

The Speedway is built to meet all demands. **In Stock—Four-cycle Type, 8 to 300 H. P.**

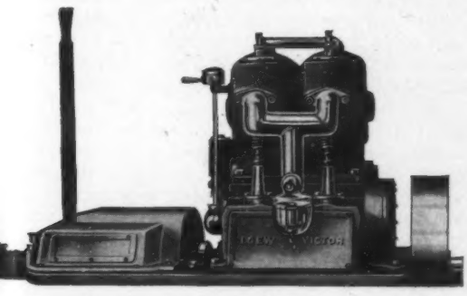
GAS ENGINE & POWER CO. and CHARLES L. SEABURY & CO.
CONSOLIDATED
MORRIS HEIGHTS, NEW YORK CITY

ere's The Husky Engine That Takes Your Eye Every Time

Made With The Same CARE, EXACTNESS AND PERFECTION That Has Made

LOEW VICTOR ENGINES

so generally recognized as being the most dependable and desirable marine engines in the world.



THIS TWO CYLINDER, 12 HORSE-POWER LOEW VICTOR is an exceptionally well balanced outfit, steady in its operation, with all vibration eliminated. It is furnished either with reverse gear or without it.

Best engine manufactured for cruising boats up to 28 feet in length—for open pleasure boats or work boats where comfort and stability are more essential than speed. Plunger Type Water Circulating Pump—Water Jacketed Manifold—Die Cast White Bronze Bearings, width of base 18¼ inches, length of base 20½ inches, type 4 cycle. Price on application.

THE LOEW VICTOR ENTHUSIAST

will be found wherever boats are used. He is the man who has learned engine wisdom from experience and his advice to you is to BUY A LOEW VICTOR.

If you are a new hand at the "game" the Loew Victor will save you hours of worry and much expense. If you are already familiar with engines you know that the Loew Victor is the one that ***always*** runs ***when*** you want it and as ***long*** as you want it. It is the one most dependable engine at all times and under all conditions.

Send for our engine information catalogue. Free on request, and well worth having.

LOEW VICTOR ENGINES

are built in sizes to suit all requirements:

1 Cylinder	- -	6 H. P.
2 Cylinder	- -	12 H. P.
3 Cylinder	- -	18 H. P.
4 Cylinder	- -	24-40 H P.
4 Cylinder	(Special)	15-30 H. P.
6 Cylinder	- -	36-60 H. P.

THE LOEW VICTOR MFG. CO.

9170 MADISON AVENUE CLEVELAND, OHIO

Ask us where you can see a LOEW VICTOR in your vicinity. There is surely one near you.

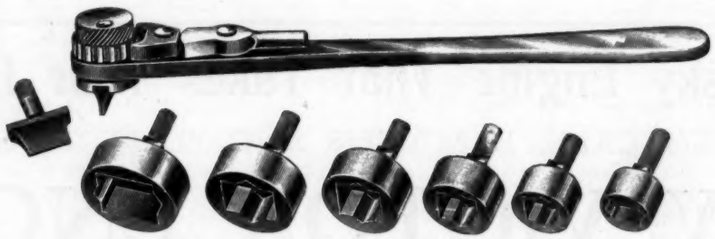
OF INTEREST TO THE SKIPPER

Elco Racers The work on Mr. Albert E. Smith's Elco-Plane is progressing very satisfactorily at the works of the designers and builders, the Electric Launch Company, Bayonne, N. J. Work has progressed so far that one can get a good idea of how she will appear when completed, and her lines denote seaworthy qualities and unsual stability, which is so important in boats of this class that develop a speed of better than 40 miles per hour.

The highest grade Elco construction is being employed in the building of the hull; the keel, sheer strake, planking and engine beds being in one length wherever possible, thereby avoiding all unnecessary joints. The hull will be of light but substantial construction, to withstand the terrific strains that will be put upon it when running at full speed; the power equipment, consisting of 600 horsepower, made up of two 300-horsepower, six-cylinder engines of special design, is 75 per cent completed, and it is believed that it will easily develop the power for which it has been designed. Mr. Henry R. Sutphen, vice-president of the Electric Launch Company, is giving his personal attention to the completion of the hull, and expects, if no unusual delays occur, that the boat will be in operation shortly, enabling Mr. Smith, who will drive the boat himself, to become thoroughly accustomed to handling her before he takes part in the important races in which he has entered the boat. The boat will be named Yankee.

Mr. J. Stuart Blackton, rear commodore of the Motor Boat Club of America, has placed an order with the Electric Launch Company for a 36-foot Fauber hydroplane racing hull, the construction of which is rapidly progressing at the works of the builders, Bayonne, N. J.

Mr. Fauber has furnished the designs for this boat, and the power plant is being looked after by Mr. Morris M. Whitaker, of New York. This hull will be of the multiple step variety, as was used in the Pioneer, one of the most successful boats designed by Mr. Fauber. Twin screws will be employed, and a large amount of power will be installed, the total weight of the boat being unusually light, which should enable her to develop a very high speed. Rear Commodore Blackton is also the owner of the Vita, an Elco express tender, which he carries on the davits of his motor yacht Paula, and in a recent letter to Mr. Sutphen, from St. Augustine, Mr. Blackton refers to his experience in winning the Southern championship trophy for high-speed motor boats with the Vita. On account of a tie in the first race it was necessary to run a second one for this important trophy, which was over a course of 50 miles. The second race was won by the Vita, her actual running time being 27 seconds faster than the previous day's racing, which is a most remarkable showing for consistent running and for seamanship in covering the course and making the turns in the most direct manner. The Motor Boat Club of America will offer valuable prizes for races next year at St. Augustine, Fla., which location, on account of the depth of the water, is ideal for motor boat racing.



Lane's Offset Ratchet Screwdriver and Wrench, made by J. C. McCarthy. Has six sockets for various sizes of square and hexagon nuts and cap screws.

A Tool Kit in Itself Last season the Motor Boat Editor of this magazine, desiring to remove the hand-hold plates from the base of an engine, found that it was either a case of ripping up the flooring of the boat or discovering an offset ratchet screwdriver.

There were offset screwdrivers enough and to burn, but there was so little space for the "throw" that a ratchet was an absolute necessity. He didn't know where such a tool could be obtained, and for three days he devoted his time to running around among the accessory shops trying to find if there was one on the market.

On the fourth day he did find such a device, and in addition to being particularly adapted for the job he had in mind, it also carried with it six socket wrenches that would take both square and hexagon nuts and cap screws. In fifteen minutes he had done the work that without this little tool would have required three hours' time and the cutting up of a perfectly good flooring.

All last season he used it for odd jobs in inaccessible places, the very small amount of clearance required allowing him to get into places in the bilge pump and under the flooring, and perform comfortably dozens of jobs that had heretofore been considerable of a nuisance. The device is a perfect little tool kit in itself, and its 7-inch handle, having a direct fulcrum, gives an amount of leverage out of all proportion to the size and weight of the tool. The screwdriver bitts are so machined as to fit snugly into the screw slots, giving the pressure on the sides of same.

The set consists of a handle 7 inches in length, two interchangeable screwdriver bitts, six wrench sockets, of 5/8, 9/16, 1/2, 7/16, 3/8 and 5/16-inch sizes, respectively, each of these wrench sockets (which may be instantly attached or detached from the handle) being made to fit both square and hexagon nuts and cap screws.

By means of a very simple lever arrangement, which may be operated by the thumb while the instrument is in use, the ratchet may be made to work either right or left. The teeth on the ratchet wheel are so close together that but very little throw is required to operate the tool—a mighty important consideration when working in close quarters. The tool is light, very strong and handsomely finished in nickel-plate and blue, and the whole affair, which retails at a ridiculously low price, is packed in a handsome wooden box with spring catch and sockets and partitions to hold the different parts in place.

Full details regarding it will be sent to all readers who will write for same to the manufacturers, Messrs. J. C. McCarthy & Co., 21 Murray Street, New York City.

For the Benefit of Atlantic Owners Along the line of the progressive policy of the Atlantic Co., they are now maintaining for the convenience of their customers service departments in the New York and Boston salesrooms, as well as at the factory. Very complete equipment of spare and repair parts are carried in stock, and the services of a competent mechanic are always available on short notice, so that an Atlantic customer requiring attention for his boat or engine may secure this promptly by a man thoroughly understanding these motors. This policy is to be commended, as it does away with the necessity of sending to the factory for repair parts, in case of emergency, while boat and engine are out of commission in the meantime.

A Sterling Flagship for the M. B. Club of Buffalo Commodore E. F. Dold, of the Motor Boat Club of Buffalo, has just announced his purchase of a 32-foot by 5-foot runabout from George Elliott. This is to be a very handsome, comfortable boat, and will be the flag ship of the Motor Boat Club of Buffalo. It is to be named the Dold Quality, and will be fitted with a 35-55-horsepower Sterling, six-cylinder engine, which is expected to drive it about 27 miles an hour. This will give the commodore one of the fastest boats on the river, and he anticipates no trouble in keeping ahead of the entire Niagara River fleet.

A Real Whistle and Pump Have you ever been out in your boat in a crowded waterway, with a river steamer coming up one side, a towboat with a string of barges dead ahead, and a fishing smack off to port, and wondered with a sinking feeling in your heart if the little tin tu'penny whistle or horn, which you had relied on for a noise maker, was going to carry far enough to indicate to the various craft what course you were going to take? It's a real pleasant feeling, isn't it? Or have you ever seen the inspector coming down the dock, and wondered if the equipment which you had on your 25 or 30-foot boat would pass the government requirements for a boat of her size, and if not, what the amount of your fine would be? If you have experienced these feelings

Don't Buy a Motor Boat

UNLESS YOU INSIST UPON HAVING A SEAMLESS STEEL SAFE, TANK

A Leaky Boat Is Pretty Bad But

A LEAKY TANK IS WORSE

Gasoline is mighty dangerous stuff, so when your Riveted Makeshift Tank springs a leak, and your boat is burning, just send us a wireless order

C-Q-D

FOR A LEAKLESS TANK

P-D-Q

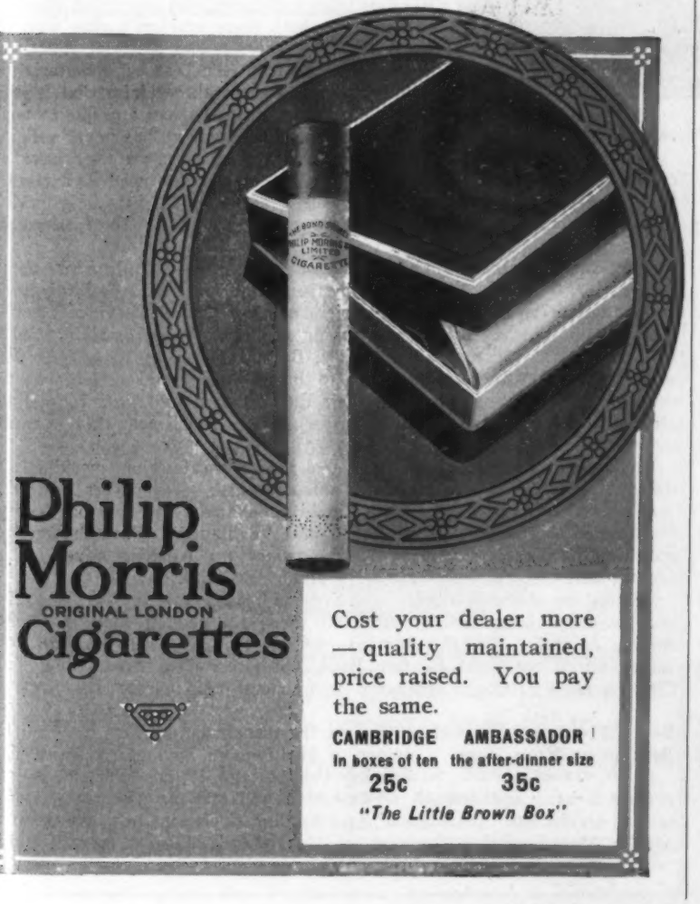
LET US FIT YOU OUT RIGHT NOW!
Think This Over—Mr. BOAT OWNER!

Seamless Steel
Leakless Tested
TANKS

JANNEY, STEINMETZ & CO.

Main Office—PHILADELPHIA - Branch—NEW YORK

Write for International Flag Code in Colors, Free.



Philip Morris
ORIGINAL LONDON
Cigarettes

Cost your dealer more — quality maintained, price raised. You pay the same.

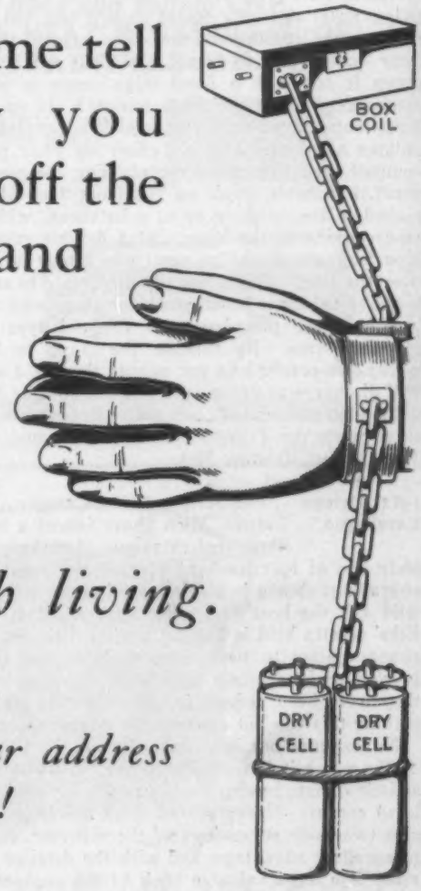
CAMBRIDGE in boxes of ten **25c**
AMBASSADOR the after-dinner size **35c**

"The Little Brown Box"

Are You Chained to the Past?

A SLAVE TO THE OBSOLETE?

Then let me tell you how you can shake off the shackles and make *power-boat* life this summer *worth living.*



Send me your address today!

DO IT NOW

H. L. Thomson Mgr

Electric Goods Mfg. Co.

SAMSON AVENUE

CANTON MASS.

Trimount Rotary Hand Bilge Pump No. 1.

the chances are that the first time you got ashore you would "beat it" for a marine supply house and lay in an article that you knew could be depended upon, under all conditions and at all times. Having been caught once in this way you will appreciate the value of the Trimount rotary whistle, which is not a toy but a real noise-maker, and one that will not only last as long as your boat but will always give good service.

This device consists of a small rotary air blower, placed on a bed piece in the bottom of the boat and run by friction with the engine fly-wheel, thus forcing a strong current of air through a pipe or rubber tubing to the Trimount whistle, which may be placed in any part of the boat desired. A small, upright lever is the means by which the driving wheel of the blower is brought in contact with the fly-wheel of the engine, a whistle cord being attached to this lever and carried to the steersman's wheel. Upon relaxing the cord the driving wheel on the blower immediately releases itself from the engine fly-wheel, so that except when the whistle is in operation the blower is at rest. It will blow for any length of time, and will make a noise that will carry as far as any steam whistle of equal size.

Again, have you ever been driving your boat in a seaway when the flying water not only comes aboard and fills up the bilge, but also works through the stuffing-box and slops around the bilge until it is up to your floor boards and fly-wheel, and then put a crick in your back trying to pump it out with a hand bilge pump or small suction pump that will discharge about 2 gallons a minute? If so, you will also appreciate the Trimount rotary bilge pump, which is guaranteed to turn out from 10 to 20 gallons a minute with no effort on your part. This pump is a small, compact, disc-like cylinder containing the mechanism, and is worked by a small detachable crank on the front face of the cylinder. It can be attached to the coaming or to a bulkhead, with a pipe running to the bilge, and a flexible rubber pipe from the discharge vent, which may be led over the side. This is equally applicable to sailboats as to power boats, and does away with the back-breaking pumping with the old type of plunger pump. By turning the crank to but eighty-five revolutions per minute the No. 1 size will discharge 10 gallons per minute, and the No. 2 pump 20 gallons. If your dealer doesn't handle these write the Trimount Rotary Company, 148 Pearl Street, Boston, Mass.

1911 Scripps Catalogue The Scripps Motor Company, of Detroit, Mich., have issued a new illustrated catalogue of their complete line of 1911 models. Among the beautiful engravings shown is Paul Hesser's famous Idlewild III, the boat that made such a hit at the Elks' regatta held in Detroit during their convention last year. No radical changes seem to have been made in the new 1911 Scripps motors, the present designs being essentially the same as those of 1910, except that they have been refined in minor details and a few new features added, making this efficient and reliable engine more complete than ever.

The Scripps Motor Company's 1911 Catalog.

No expense has been spared to make this handsome catalogue worthy of the name it bears. The cover, which is shown herewith, is of a very artistic design, having the four-cylinder engine embossed in the lower left-hand corner. Heavy coated stock has been used throughout, enabling the rich two-color engravings of the different models and their parts to show to excellent advantage, and with the detailed descriptions and prices given make it a most valuable book to the prospective purchaser. The Scripps Motor Company, of Detroit, Mich., will be pleased to send this catalogue to anyone who will write them, mentioning YACHTING.

A Book for the Boat Owner Not only at this season of the year, when the boats are going overboard, but throughout the year, boat owners have constant occasion to make demands on marine supply dealers and outfitters for boat fittings, accessories, etc., and for that reason a comprehensive catalogue of such a kind in which every item for marine appliance is shown, and the price given, is a mighty useful book. The 1911 catalogue of Geo. B. Carpenter & Co., of Chicago, Ill., is particularly valuable, in that it not only has a full list of everything that a boatman might want, with illustrations and sizes of the various articles, but also has two mighty good chapters devoted to the practical care and operation of both sail boats and motor boats. These chapters alone make the book a particularly valuable one to retain, and the catalogue is invaluable when one is not able to make a personal call at the store. While much of Geo. B. Carpenter & Co.'s business is done through the trade, they will gladly send their catalogue to any one interested in boating who will write for same, mentioning YACHTING, and they will accept mail orders direct from territory where they are not represented, and invite correspondence on all matters pertaining to boat supplies.

New Work at Wilson & Silsby's Owing to the late spring, Wilson & Silsby, the well-known sailmakers, of Rowe's Wharf, Boston, Mass., report that orders for sails have been held back somewhat behind former years, but that orders are now coming in with a rush, and the season gives promise of being a very busy one, with a great deal of work put out in a short time. So far this firm have in hand, or have put out, over one hundred suits of sails this year, a number of them for new craft, especially the new 31-raters from designs by George Owen. During the early part of the season a great many orders came from abroad, the firm having shipped a number of suits to Germany, and their foreign orders being greatly in excess of the usual at this time of year. They are much gratified at the orders from Germany, which shows that that country appreciates the work that is being turned out by American sailmakers. Wilson & Silsby are also furnishing sails for the new three-masted schooner for the Grenfell Association, which has recently been designed by Bowes & Mower.

Trimount Rotary Power Whistle. When installed in a boat the whistle is connected with blower by tubing, permitting it to be placed in any position desired.

The firm has also been very busy on sails for aeroplanes, and are making a specialty of this line of business. This work is, in a measure, taking the place of that which has been lost by the sailboat owners going in for power. The firm has also made many suits of sails for the Pacific Coast.

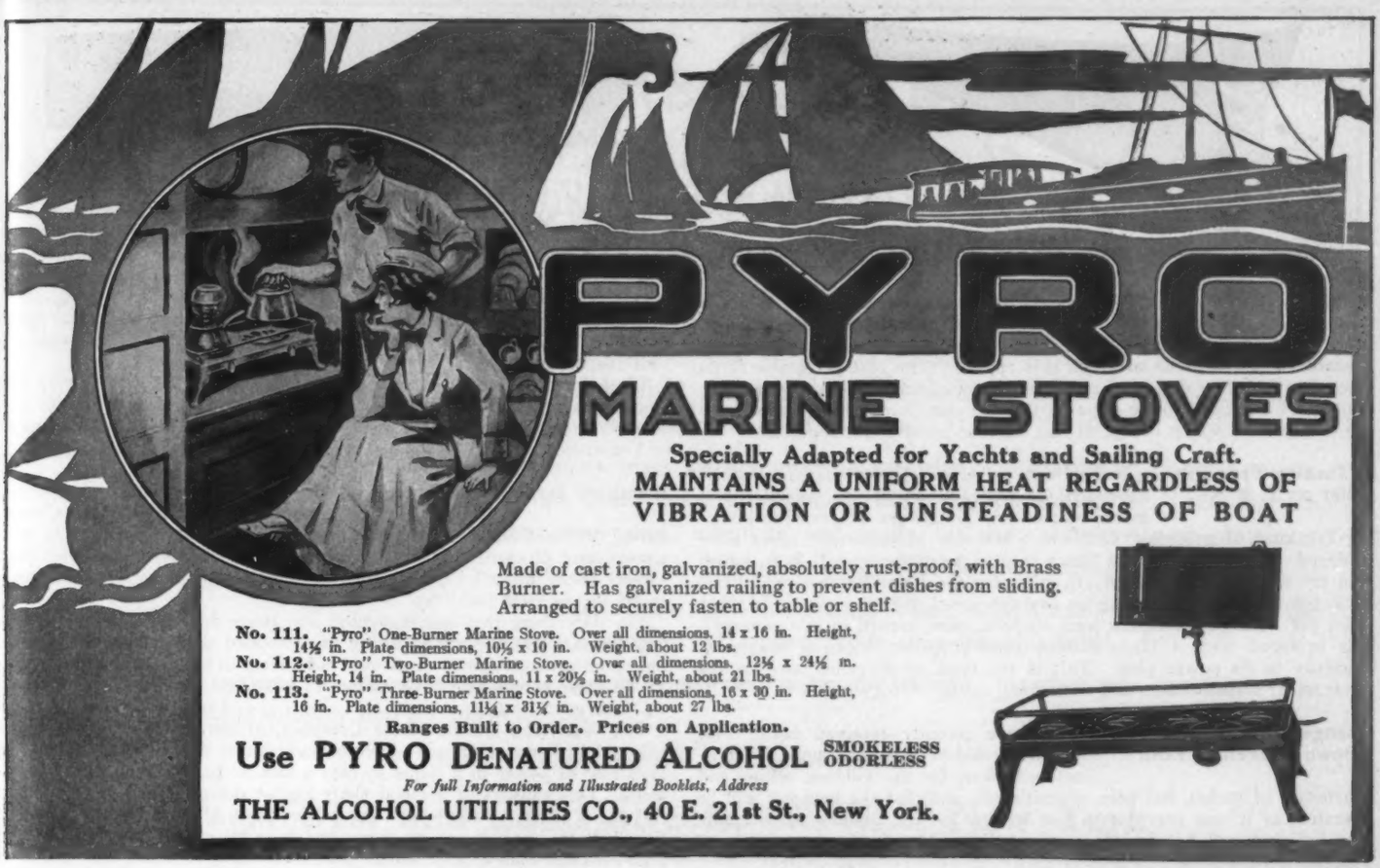
An Elastic and Durable Spar Varnish Every yachtsman, no matter what type of boat he owns, is interested in spar varnish, and is always looking for a brand that will keep his bright work and spars in the best shape with the least work. The Boston Varnish Company, of Everett Station, Boston, Mass., makers of Kyanize spar finish, are offering to boat owners a spar varnish that has been used by the United States government for the navy in large quantities, and has stood the most critical tests both there and on yachts with the most critical owners. The material is light in color; is made from the best basic material; is very elastic, and the makers claim that it is as durable, or more durable, than any like material on the market. The company has never solicited testimonials from the users, yet they have received a great many letters from yachtsmen who have used Kyanize and have been highly pleased with the results; and the fact that it is used in such large quantities by the United States navy is a guarantee of its quality.

A Non-Inflammable Polish Many changes are constantly made necessary by the fire and insurance laws of different communities and by public carriers of express and freight. To meet these regulations and make the shipping and use of their goods absolutely safe, as regards inflammable materials, Borsum Bros., of New York City, who are at all times endeavoring to bring their metal polishes to the standard of perfection, state that their Putz Pomade and Putz Liquid, and all their other brands of liquids, pastes and powders, meet these requirements fully.

Anyone using these polishes may feel perfectly safe when working with them, either inside or outside their boats or houses. The makers state that Borsum's Putz Pomade and Putz Liquid polishes are the only ones manufactured in this country from the genuine "Brillantine" Putz Pulver (red polishing powder). Having the sole agency for America covering this famous abrasive, there is no other genuine "Brillantine" to be had.

Bearing the above in mind, boat owners will find these polishes just what they want on board for cleaning all those things that look best when shining brightly. For further information that will help you do your spring fitting out write Borsum Bros., 188 Greenwich Street, New York City, for their catalogue and price list of metal polishes.

For a Hard and Smooth Bottom on Your Boat One of the principal things with which the owner of any type of boat has to contend is keeping the bottom of the craft clear and getting a hard and smooth surface that will stay on the boat through several scrubbings. Marblehead Anti-Fouling Green, made by the Stearns-McKay Manufacturing Company, of Marblehead, Mass., is so well known



PYRO
MARINE STOVES

Specially Adapted for Yachts and Sailing Craft.
MAINTAINS A UNIFORM HEAT REGARDLESS OF VIBRATION OR UNSTEADINESS OF BOAT

Made of cast iron, galvanized, absolutely rust-proof, with Brass Burner. Has galvanized railing to prevent dishes from sliding. Arranged to securely fasten to table or shelf.

No. 111. "Pyro" One-Burner Marine Stove. Over all dimensions, 14 x 16 in. Height, 14½ in. Plate dimensions, 10½ x 10 in. Weight, about 12 lbs.
No. 112. "Pyro" Two-Burner Marine Stove. Over all dimensions, 12½ x 24½ in. Height, 14 in. Plate dimensions, 11 x 20½ in. Weight, about 21 lbs.
No. 113. "Pyro" Three-Burner Marine Stove. Over all dimensions, 16 x 30 in. Height, 16 in. Plate dimensions, 11¼ x 31¼ in. Weight, about 27 lbs.

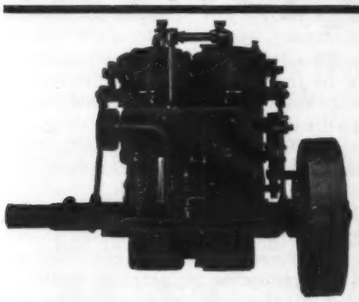
Ranges Built to Order. Prices on Application.

Use PYRO DENATURED ALCOHOL SMOKELESS ODORLESS

For full Information and Illustrated Booklets, Address

THE ALCOHOL UTILITIES CO., 40 E. 21st St., New York.

Our 1911 KNOX is the Best Motor we have ever produced



—certainly worthy of your investigation, considering they have been in successful operation for over twelve years.

With our model "D" Carburetor they will operate successfully on Gasolene. Kerosene, Distillate or Alcohol. Sizes 3 to 40 H. P., two and four cycle. Make and Break or Jump Spark ignition.

The Proper MOTOR for the Commercial Boat or Cruising Launch

SEND FOR OUR 1911 CATALOGUE, NOW READY

BOATS—

Our 1911 Famous **Knox YAWL Launch** is the only Launch that meets *all* requirements and sold at reasonable prices. Sizes 19' to 30'.

CAMDEN ANCHOR-ROCKLAND MACHINE CO.
CAMDEN, MAINE, U. S. A.

—— AGENCIES ——

114 State Street, Boston, Mass.
The Bourse, Philadelphia, Pa.
J. A. Pugsley & Co., St. John, N. B.
H. H. Trefethen, Merrill's Wharf, Portland, Me.

SHIPMATE RANGES

8 SIZES 11 STYLES

Extract from a letter from one of our Customers

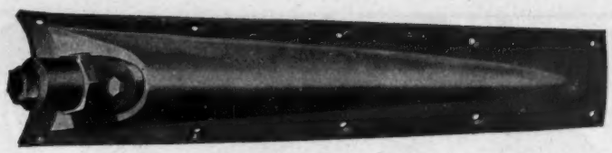
"Your No. 1 Shipmate (a shipmate it is too) has done its work nobly this past season, turning out a meal regularly for four people in short order.

"We used charcoal and coal which does away with all smoke, except for a few minutes at first, and we could keep a coal fire indefinitely with a little watching."

THE STAMFORD FOUNDRY COMPANY

Established 1830. STAMFORD, CONN.

Waterman Canoe Shaft Log, with Self-Aligning Stuffing Box, Side View.



Bottom View of Shaft Log.

to most boat owners that it needs no introduction to them. It is not a copper paint, though it is non-corrosive, and it not only gives a hard, smooth and durable finish, but being light green in color adds much to the appearance of the yacht on which it is applied. The cost per gallon is no more than for other first-class non-fouling paints, and while it is more than the cost of a cheaper grade of paint, the fact that its durability saves from $30 to $250 in a season is a point that all boat owners will appreciate.

A Turbine Type Propeller on T. & S. In regard to speed in a power boat, so much is depended upon the design of the propeller that motor boat owners are always interested in knowing the kind of propeller with which winners of important races were equipped. In the recent Palm Beach regatta the motor boat T. & S., which won the endurance contest of 119 miles for the Palm Beach Grand Prize of $2,500 in gold, maintaining an average speed over the course of 28.11 miles per hour (breaking the long-distance speed record in this country), was equipped with a Hyde turbine type propeller, insuring maximum efficiency to its power plan. This is the type of propeller used in the government torpedo boats and destroyers.

Change of Name in a Well-Known Brokerage Firm We have recently received notice that the partnership of Messrs. Seaman & Huntington, brokers for the building, selling and chartering of yachts, has been discontinued, and that the business will be operated, as it was previous to last winter, by Mr. Stanley M. Seaman. The business will be carried on as usual by Mr. Seaman at the same address, 220 Broadway, New York City.

Look Out for Your Tiller Rope It is strange the way some power boat owners go to sea with an inadequate steering gear and without taking the trouble to find out if their gear and tiller connections are worn, or are sufficiently strong to stand the strain put upon them. In the article in this issue, by Mr. Charles H. Hall, particular stress is laid upon the necessity of an adequate tiller connection, and to those who do not know that anything better than common braided tiller cord exists, we would suggest that they look into the merits of the waterproof, bronze-cored tiller rope which is made by the Tucker & Carter Rope Company, of New York City. This is a braided rope containing a bronze wire core, this company holding the patent on this form of rope. This tiller cord is the strongest of its size of anything manufactured, and is particularly suitable for power boats. The flax yarn is hanked and waterproofed before it is made into a rope, and then twisted into the size strands required, naturally producing a waterproof cord throughout. It cannot stretch, is impervious to weather and will give greater service than anything used for the same purpose under similar exacting conditions. This cord is handled by local dealers in marine supplies throughout the country, but further information can be obtained by writing the Tucker & Carter Rope Company, 76 South Street, New York City.

Locking a Locker Did you ever go down to your boat on a morning and discover that someone, with taking ways, had been through the lockers and carefully selected just that part of your equipment which you most needed and wanted? And then, after you had put a hasp and padlock on each and every storage space in the boat, did you ever spend time chasing back to the club house for the key that you'd left in your other clothes, until some ingenious friend showed you just how easily the padlocks could be opened with a button hook?

If you have passed through these experiences, and most of us have, you will be in a position to appreciate the combination locker lock which James D. Macnab, of 438 West Sixth Street, Plainfield, N. J., is offering to boat owners, who desire all the difficulty of getting at their equipment to be experienced by the fellow who has no right to it. These locks operate on a combination known only to the owner, thus obviating the necessity of keys. They may be arranged as a snap lock, or, by means of a throw-off, it is possible, when using the boat, to operate the lock simply as a knob latch, returning immediately to the combination lock principle when leaving the boat for the night.

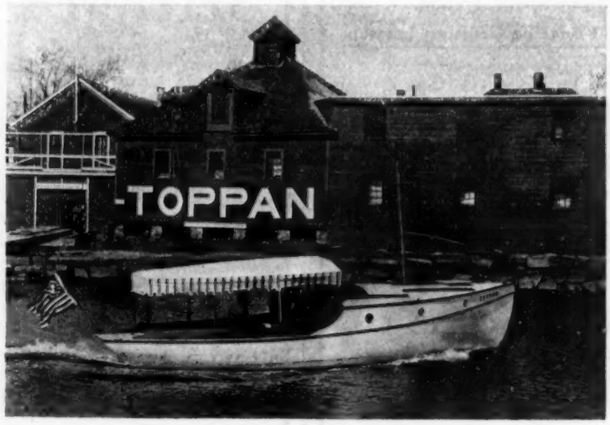
These locks are neat and strong, and will save so much equipment and trouble that everyone of our readers should write for full details to Mr. Macnab at the above address, mentioning the fact that they saw the notice in YACHTING.

Installing Power in a Canoe Many canoeists, realizing what a fine little power craft a canoe makes, have, during the last couple of seasons, equipped their paddling models with motors, and proceeded to hustle over the water at more than twice their former speed while lying back on their cushions and figuring how much easier it was than paddling.

The only thing that has prevented still more men from following suit was the fact that the proper fitting of a wooden shaft log to a canoe required an amount of mechanical skill not always to be found in the amateur, To all these people who have wanted to substitute a motor for the paddle we have good news to impart.

The Waterman Marine Motor Company, of Detroit, Mich.—builders of splendid little canoe motors—have brought out a device which makes the installing of power in a canoe so easy a task as to render it a real enjoyment. This consists of a metal shaft log, so designed that any man who can use a monkey-wrench or a screwdriver can put in his engine foundation, bolt the shaft log to his canoe and have his engine installed fair and true with less than a day's work. The shaft log is of metal, with a groove in it that brings it almost to the stern of the canoe, allowing the propeller to be installed close to the stuffing-box, thus getting away from the necessity of using a strut or any other outboard bearing. The lower tip of the shaft log has been designed with sufficient metal to allow bolting on a short piece of strap iron to form a shoe to carry the lower end of the rudder post. The stuffing-box with which the shaft log is equipped has the special aligning device of the Glens Falls Company, by which, even should the shaft log or engine bed be out of true, the shaft will be in perfect alignment, which means that all the trouble of the micrometer measurements and hairbreadth accuracy that the average engine installation demands are done away with. The illustrations herewith show bottom and side views of the Waterman Shaft Log with aligning stuffing-box attached. Further details regarding price, size, etc., may be obtained from the Waterman Marine Motor Company, of 1541 Fort Street, West, Detroit, Mich.

Toppan Dory Cruiser The accompanying cut shows the 26-foot raised-deck Toppan cruiser which was exhibited at the Boston Show, and which attracted great attention and created much favorable comment. The lines and plan of this boat were published in the March YACHTING, and as a rough water, safe and reliable cruiser it is surely a winner. On her trial trip, equipped with 8-10-horsepower Toppan jump-spark reversible motor, she showed a speed of close to 9 miles.



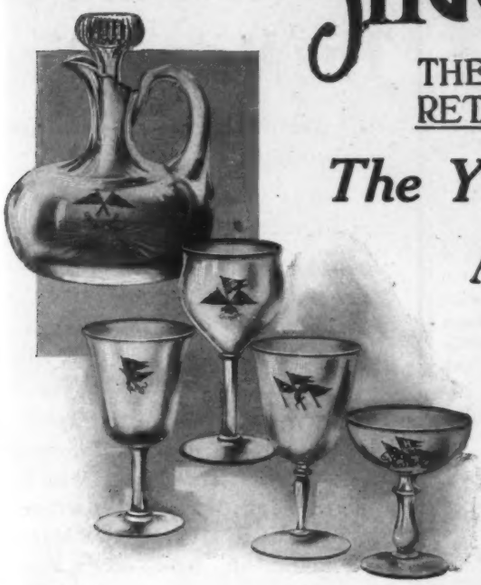
Toppan 26-foot Cabin Dory.

The completeness of this small boat as a cruiser is worthy of more than passing notice. It is hard to realize that so much room and comfort can be obtained in a boat of this size, keeping at the same time a 10-foot self-bailing cockpit. The Toppan Company have received several orders for this size and several for the 30 by 8-foot boat of similar type. They have also received an order for a 40 by 10-foot to be used around New York for cruising and fishing. This latter boat will be sent around under her own power as soon as finished, and will no doubt give a good account of herself later in the season.

The Toppan Company, of 17 Haverhill Street, Boston, Mass., are getting out a

HIGGINS & SEITER

THE·LARGEST·CHINA·&·GLASS
RETAILERS·IN·THE·WORLD



The Yacht's Table Services

AMONG those yachtsmen who pride themselves upon their craft's equipment, it has become a *custom* to have the Yacht's China, Glass and Silver Services decorated with the Owner's Private Signal or Colors, Monogram or Club Insignia.

For many years we have made a specialty of preparing an original design, or one based upon the Owner's ideas, and furnishing the Table Service thus decorated, complete and ready for use. Hundreds of prominent yachts have been equipped by us (list sent on request).

We operate our own Decorating Plant, which enables us to quote the *lowest prices* for the *highest grade* of work obtainable.

We will gladly submit a specimen plate or goblet decorated with any design, together with estimate—*free of charge* and *without entailing any obligation to buy.*

Illustrated Booklet and full particulars on request

West 21st and 22nd Streets, JUST EAST OF SIXTH AVENUE **New York**

In Every Field

there is an article that stands head and shoulders above its fellows.

In the Ignition Field it is the

SPLITDORF MAGNETO

Every motorboatman who uses a SPLITDORF is enthusiastic over it.

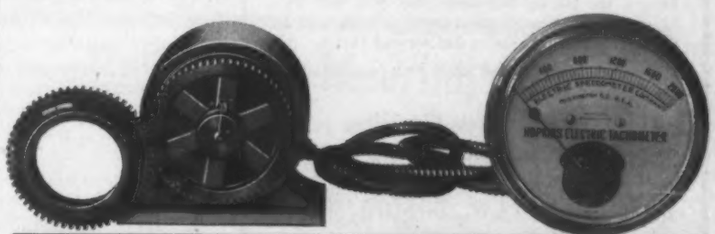
Because he has found by experience that he can depend on it to give him Perfect Ignition and Satisfactory Service right through the season.

Ask for Magneto Catalog

C. F. SPLITDORF

Chicago: 319 Michigan Ave.
San Francisco: 520 Van Ness Ave.
Detroit: 868 Woodward Ave.
Boston: Motor Mart
Los Angeles: 1226 S. Olive St.

Walton Ave. and 138th Street
Branch, 1679 Broadway
NEW YORK



What is Your Engine Speed?

Put a Hopkins Electric Tachometer in your boat and know the **exact** speed of your engine. This unique device consists of a magneto, gear driven from propeller shaft, and an indicator mounted in engine room, cabin, on the bridge, or wherever wanted. Illustration shows a complete

HOPKINS ELECTRIC TACHOMETER

"No Flexible Shaft"

Magneto generates current in direct proportion to its speed; current is carried by brass protected twin-conductor electric cable to indicator. Any number of indicators can be wired to same magneto.

Instrument indicates accurately in any weather or temperature. Reads absolutely steady. Entire outfit is noiseless, trouble-proof, and beautifully finished in polished brass.

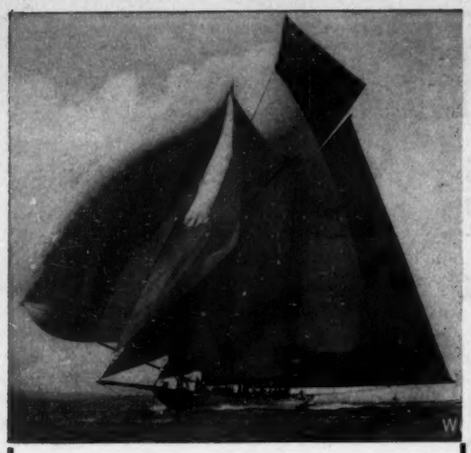
Used by U. S. Navy

Price **$75**

Send for Descriptive Booklet

ELECTRIC SPEEDOMETER CO., Washington, D. C.

New York Office, 1999 Broadway



WESTWARD

Lowell Duck Wins

Carried by eighteen winners in recent races—

MAVOURNEEN	NONSOON	DERVISH
SPIRIT	SHYESSA IV	ELLEN
NUTMEG	AGNES II	TIMANDRA
CIMA	EO	AVENGER
BEAVER	HIRMIONE	CENESEE
MASSACHUSETTS	WESTWARD	HAYSEED II

It helped them win because it is the **closest, strongest and best setting canvas** made for yachts.

It is used by the Cup defenders, the 70's and 65 footers, the Racing Schooners, the 30's and 25's, Q class, 15 footers, the Sonder class boats, and by the great majority of racing and winning yachts.

Be sure to get Lowell Duck. It is made in two qualities:

Regular for Cruising
Special for Racing

Boston Yarn Co., Boston, Mass.

Selling Agents for

Trade **LOWELL** Mark

Reg. U. S. Pat. Off.

DUCK

High Grade Heavy Weight Tanks

For Gasolene, Water and Air of any shape or dimensions desired for any pressure. We make only work of merit.

"Light Competition Work Not Wanted."

Galvanizing of all kinds of marine work.

L. O. KOVEN & BROTHER
50 Cliff Street : : : New York

set of bulletins on these cruisers which should prove very interesting, and which will be sent free of charge to any reader of YACHTING.

A Real Yachting Luxury There are few articles tending to the comfort of the yachtsman, in which the improvements made during the past year have been greater than in the Vacuum, or thermal bottle, which can now be purchased in sizes up to *one gallon* capacity, and which are much more serviceable than formerly.

In the Vacuum Carafe, recently placed on the market by the Vacuum Specialty Company, of New York, it is claimed that features have been introduced that make this article a strong and serviceable bottle. This "Hotakold" Vacuum Carafe is spherical in shape, with a long, wide neck, making it much stronger and with greater power for retaining temperature than the ordinary shaped thermal bottle. The stopper, which is of glass, is ground in to an air-tight joint, and cannot absorb contents of bottle and become unsanitary as the ordinary cork stopper.

To further insure this Carafe against breaking, it is arranged in a tilting holder, or gimbals, as a ship's compass, where it is not affected by any motion of the vessel. This holder can be attached anywhere—in the stateroom, cabin, pilot house, cockpit, on the deck—and the carafe is always safe and ready when wanted, with ice cold water, or boiling hot coffee, or whatever it may have in it, put in, probably, days before. It is claimed that in this carafe ice water can be kept ice cold for three days, and that hot liquids can be kept steaming hot for from 24 to 36 hours.

Hamilton Inlet Cruise, Labrador

(Continued from page 396.)

get hold of it. It is a strong part of the policy of the trading companies not to sell intoxicants in any form to the natives.

Monday morning bright and early saw us out in the lake again and on our way to make the final mail call at Grand Village, a little settlement 27 miles up the Hamilton River. When within less than half a mile of her destination, however, the Yale went hard and fast aground on a sand bar, and the mail had to be delivered by dory. An amusing thing happened while we were at work kedging the vessel back into the channel. Someone happened to see a little red fox playing around on shore, and let out a whoop as though he had discovered an elephant. We all dropped out work and watched the little fellow, for this was the first living animal, aside from some semi-wild sledge dogs and goats, which we had seen since coming to Labrador. Finally one of the fellows ducked below, soon to reappear with an ancient Flobert rifle for which he had made the former owner back in Maine a gift of some $8.00 shortly before we sailed. He had never been known to hit anything less bulky than an iceberg with this piece of artillery, yet we all remonstrated, and the game warden piped up with "I'll arrest you if you shoot at him."

"I'm not shooting at him," said Larry, reproachfully, "just want to make him run." He fired, and our little visitor looked highly bored and trotted back into the sheltering forest.

Meantime the tide had risen so that the Yale was afloat, and our voyage back to Indian Harbor was without event, beyond going aground again in the river and finding several patients to carry out to the hospital from Rigolet.

The new crew had got pretty well broken in by this time, so our party broke up and found its way back to the tropical heat of the New England coast by various routes; but it will be a long time before we forget that most fascinating of Labrador's magnificent fjords—old Hamilton Inlet.

In The Land Of The Moose Bird

An Adventurous Trip to Hudson Bay via the Albany River

By William J. Malone

"Being some Account of Travel by Canoe and Portage through the Land of the Voyageur and Coureur du Bois in the country where roll the Kenogami, the Albany and the Moose."

To everyone in whom the spirit of adventure dwells this graphic record, by one of a party of four who took a journey by canoe and portage of over ELEVEN HUNDRED MILES, will make an irresistible appeal. No American sportsman should miss this trip through a land where rivers and lakes are the only highways, canoes and dog-sleds the only vehicles.

The First Installment Appears In the May Number of

Rod and Gun In Canada

15c pays for this number. $1.50 postpaid per annum to any part of the United States. (Stamps accepted.)

W. J. TAYLOR LIMITED PUBLISHER
34-38 DUNDAS STREET
WOODSTOCK, ONT.

When writing kindly mention having seen this Ad. in Yachting.

No Motor Boat

is complete without a set of

GENUINE Armstrong Stock & Dies

[Manufactured by

THE ARMSTRONG MFG. CO.
310 Knowlton St., Bridgeport, Conn.
NEW YORK CHICAGO

BRIDGEPORT BRONZE

GOOD ADVICE

No boat is *good* without a *good* bottom,
Why not use *good* paint and keep it *good*.

"BRIDGEPORT BRONZE"

This has proven it a success *and*, has also produced many imitations. Eleven years have proved the worth of Bridgeport Bronze

OUR FAMOUS STAMP

We guarantee to refund the amount of this bill, if at the end of the season there is any sea growth on the bottom of the boat, on which two coats of our B. B. paint has been properly applied.

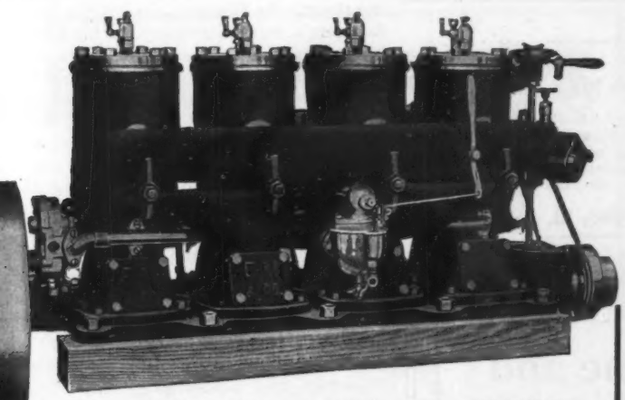
The Bridgeport Bronze Marine Paint Company

OUR FAMOUS STAMP

It stands one year without growing grass or barnacles. It gives a racing finish as fast as pot lead.

BRIDGEPORT BRONZE MARINE PAINT COMPANY

BRIDGEPORT, CONN. Western Agents:—BENNETT, O'CONNELL & STEVENS 15 South Clinton Street, Chicago, Ill. Cable address "Lacquero Bridgeport"



The world wide reputation for reliability possessed by

FAIRBANKS-MORSE

Marine Engines

Has been built up on the satisfactory experience of many thousands of owners. These engines start without cranking and are guaranteed to develop more than rated horse power. The designs are simple, material and workmanship the best. All parts interchangeable and easily accessible. 2-cycle engines, 3½ to 24 H. P.; 4-cycle, 4½ to 40 H. P.

Send for beautifully illustrated catalog No. 1316 BF and list of our 36 branch houses where our engines are carried in stock.

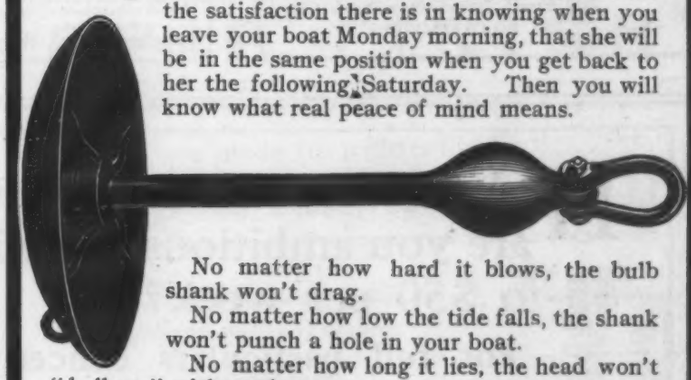
FAIRBANKS, MORSE & CO.

900 S. Wabash Ave., Chicago, Ill. 30 Church St., New York

An Attractive Proposition for Agents.

Get a Bulb Shank Mooring Anchor

WHY should you trust the craft in which you have invested your good money to an inadequate or inferior mooring anchor? Get a **BULB SHANK** and realize the satisfaction there is in knowing when you leave your boat Monday morning, that she will be in the same position when you get back to her the following Saturday. Then you will know what real peace of mind means.



No matter how hard it blows, the bulb shank won't drag.

No matter how low the tide falls, the shank won't punch a hole in your boat.

No matter how long it lies, the head won't "ball up" with mud.

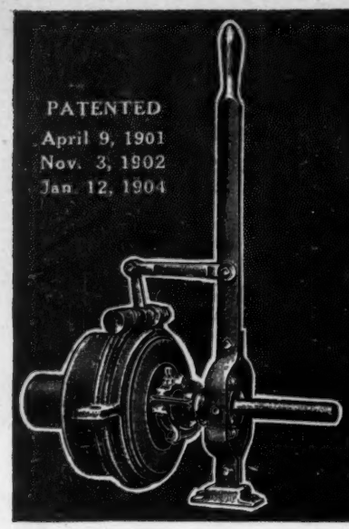
Send to us for a handsome booklet explaining the many advantages of a **BULB SHANK** mooring anchor and telling you the weight you will require for your particular boat. If you had trouble in the past, profit by that experience and get a **BULB SHANK** for your 1911 mooring.

FAIRHAVEN IRON FOUNDRY CO.

2 WATER STREET, FAIRHAVEN, MASS.

AGENTS

NEW YORK: C. D. DURKEE & CO., 2 and 3 South St.
BOSTON: A. S. MORSE CO., 210-112 Commercial St.
CHICAGO: GEO. B. CARPENTER & CO., 202-210 South Water St.



PATENTED
April 9, 1901
Nov. 3, 1902
Jan. 12, 1904

THE IMPROVED **BALL REVERSE GEAR**
for
MOTOR BOATS
Made only of
HARDENED STEEL SPUR GEARS
MOST RELIABLE HIGHEST GRADE EASIEST TO INSTALL
Four sizes carried in stock
Send for Catalog
NEW YORK GEAR WORKS
55 Milton Street, BROOKLYN, N. Y.

Quality Cushions
Mattresses, Pillows and Upholstery
Manufactured since 1845 by
M. W. FOGG
202 Front Street, New York City
NO CATALOGUES

Set Your Motor Level
It oils better, works better and lasts longer
Any hull, when driven through the water, buckles aft the engine and binds the propeller shaft. The resulting strain, undue wear and loss of power are overcome by using Walters Flexible Shaft Coupling.
Our illustrated 1911 Marine Specialty Catalogue describes this and other valuable fittings, reverse gears, speed wheels, etc. You can't afford to buy, build or repair until you read it and "Practical Information About PowerBoats."
Dept. Y

MECHANICAL DEVICES CO., Watervliet, N.Y.

Ask your dealer to show you
The Auto Marine Spark Plug
One quarter turn of insulated handle **removes both sparking points**, allowing cleaning and testing without removing wire. No leak at joint. No loss of compression. Send for circular.
Legnard Bros., Waukegan, Ill.

HAVE you some leisure time and are you ambitious to make from $5 to $50 per week?

For full particulars concerning liberal cash commission, etc., offered subscription seekers,

Address, Desk 57

SCRIBNER'S MAGAZINE
155 FIFTH AVENUE, NEW YORK CITY

The "Lady Maud," Schooner Yac

(Continued from page 430.)

and soothed him as best I could, pointing to t land, and bidding him swim to it, just as I wo have talked to a man. The creature looked me and whined. I patted him again, and th Tripshore helped me to raise him, and we carri him to the submerged side of the hull, walking to our armpits in water, and there we flung h overboard into the whirl of froth. He sunk the foam, and I believed that the weight of t wet rope had dragged him down; but presen his head came up a little distance above from yacht. He turned and tried to regain the ves I shouted, and pointed to the land, gesticulati furiously in that direction, and menacing him.

For about a minute—to me an eternity—dog swam round and round, and I was in greatest terror lest the line, which I had gi plenty of scope to, should foul his legs. He r and sank upon the seas, swimming very well, the foam blowing like drifts of snow over h At last a sea lifted him high, with his eyes to land, and from that moment he began steadily make for it.

Seeing this, I told Tripshore to shout to man on the beach to look out for the dog. T animal had a large head, and it was impossi for the man to miss seeing him. As the swam I carefully threw fake after fake of overboard, giving aboundance of slack, that might be as little hampered as possible. The of the tide—which I knew to be rising by feel the twitching of the vessel—carried the dog so what to the eastward, but the strong wind bl ing in a contrary direction greatly diminished influence of the tide upon the brave brute, with a transport of delight I beheld him slo but surely approach the land.

In about ten minutes after having been thro overboard the dog was among the breakers. he been a man swimming for his life, this wo have been the most desperate part of the und taking. But I did not fear for the dog. I k his great muscular power, and that his long row body would not be greatly affected by recoil of the breakers. And presently I saw flung up on top of a running sea, and as it br upon the beach, the dog sprang out of the fo and ran to the man, and lay down at his feet.

I now told Tripshore to look about him select the stoutest rope he could find, and ben on to the line, and tell the man to haul it ash He guessed my scheme, as indeed any sa would, and fell to work with great energy smartness. Whilst he cleared away the big rope he could come at, I crept along under bulwarks, and watching my opportunity, mad dash for the companion, and swung myself it before the sea could strike me.

The water was rising in the cabin fast. Mordaunt and the others stood at the foot of steps. I told them the forecastle was the sa place now, that very little water was coming there, that the dog had reached the shore the line, and that under God's providence I sure we should be able to save our lives. saying, I took Lady Brookes' hand and helped up the steps, calling to the others to follow

As well as my eyes could measure the dista the beach was about fifty fathoms away. All tween was the broken white water, in which boat could have lived an instant, even had had a boat to launch. Apparently the reef had struck on was a shelf that would be dr smooth water at low tide. The yacht had st it bow on, and run up it, then swung broad round, leaving the forepart of her high.

The instant we had manufactured a warp bent the end of it on to the shore line, and naled to the man to haul it in. This he did,

MERIDEN

Cups and Trophies

WHETHER it be a cup or trophy to be raced for at the regatta of the big club, or a suitable prize to the winners of the weekly race given by the smaller club, Meriden Cups and Trophies are most appropriate. In every sense of the word, they reflect the true spirit of the race and the generosity of the donor.

Our variety of designs, from the most elaborate especially designed sterling cups to the more modest ones in silver plate, copper and pewter, is most varied and complete.

Send for illustrated catalogue

THE MERIDEN COMPANY, *Silversmiths*
(International Silver Co., Successor)
49-51 West 34th Street
and 68-70 West 35th Street,
NEW YORK

OLDING ANCHORS

MADE IN TEN SIZES

4 to 45 Pounds

Both flukes and arms of these anchors fold closely to shank, thus allowing them to be stowed in a very small e when not in use, a feature that will be appreciated oat owners. They are strongly made heavily galvan- and will hold on any bottom where a kedge or similar or will hold.

your dealer cannot supply you, write us

INCORPORATED 1864

LLEABLE IRON FITTINGS COMPANY
BRANFORD, CONN.

KYANIZE

SPAR FINISH

For Motor Boats, Yachts and Canoes
is made to withstand the
Sun, Wind, Rain, Heat and Cold

"Uncle Sam" has used thousands of gallons on his Warships

He tested it—then used it

We want you to do the same.
Testing sample sent free.

Boston Varnish Company
Everett Station, Boston, Mass.

"WILLOWCRAFT"

is not a fad nor a fancy. It is simply the creation of a furniture period—a renaissance in willow work. You have only to view the genuine "Willowcraft" to feel the atmosphere of artistic treatment—exclusive—rich—effective—correct. And its constructive quality gives a lifetime of service. Yet prices make for true economy. Ask your dealer for genuine "Willowcraft" and look for the "Willowcraft" stamp. Illustrated catalogue, names of "Willowcraft" dealers and price list free.

THE WILLOWCRAFT SHOPS, Box L, North Cambridge, Mass.

PERMANENT EXHIBITION OF MOTORS

An engine for every purpose. If you know what you require, we have it. If you are not certain, we can help you select. Heavy Duty, Medium and High-Speed, Two-Cycle, Four-Cycle Marine, Stationary, Aero, Electric Lighting, Pumping Outfits.

GASOLINE ENGINE EQUIPMENT CO., 133 Liberty Street, New York

Remember!

Your equipment is incomplete without a camera. And the *best* camera is a

GRAFLEX CAMERA

with Steinheil F. 4.5 Lens

Because it is the fastest camera and lens equipment made; because you can *see* what you are going to get on your plate up to the moment of exposure; and because it is always ready for instant work. Our descriptive catalogue is yours for the asking.

THE HERBERT-HUESGEN CO.

Specialists in Things Photographic

311 Madison Ave. New York City

When Your Locker is Cleaned Out

this spring, and you resurrect a few such unconsidered trifles as coils, carburetors, oil and grease cups, propeller wheels and other bits of equipment that you have replaced — just think of how many people would be glad to get 'em at a price which would buy you several good tasting smokes.

If you've any doubt, just advertise 'em in Yachting's For Sale Department (80 words for $1.75) and see.

SOPER GASOLINE ENGINES and POWER BOATS

The Prices of SOPER 2-cycle Gasoline Engines are reasonable, but you can find nothing better at any price for Automobile, Marine, Portable, Stationary and Hoisting purposes. 3 to 30 H. P. 1 to 6 cylinders. Designers and Builders of Power Boats—all styles.

Bucksport Launch and Engine Works BUCKSPORT, ME.

Don't Continue the Key Nuisance

The ideal lock for all purposes, and especially about and around boats, is the *LABYRINTH KEYLESS LOCK*. It is worked by clicks — no keys, no dial, no light needed. Simple, durable, unpickable. Try one a week and if you don't like it money back. Iron padlock or drawer lock, 75c, chest lock, $1.00; brass padlock—best for use around salt water—$1.50, postpaid in U. S.

JAMES B. MACNAB, PLAINFIELD, N. J.

THOROUGHLY DEPENDABLE

WHISTLE OUTFITS

That always command attention. Write to-day for Catalog No. 11. It describes outfits. From $5 to $50.

Fog Bells, Spark and Throttle Controls, Gasoline Filters, Special Fittings, Etc.

Gray-Hawley Mfg. Co., Fort St., Detroit

Catch on? No?

Fish will. 500 per cent more with this Cork than any made. Kept set. Cork does the fishing. Not set same as any old cork. Sample 50c, or 3 for $1, by mail.

PATENT SELF-STRIKING FISH CORK CO.

507 Temple Building, St. Louis, Mo., U. S. A.

$2,000.00 in Prizes For the Big Game Fish

FIELD AND STREAM

"America's Magazine for Sportsmen," is Offering 203 Prizes for the Biggest Fresh and Salt Water Game Fish Caught During 1911

This $2,000.00 will be divided into 203 monthly prizes for the biggest fish caught each month and grand prizes for the entire season in each class. Prizes include $60 silver cups, silver medals, high class rods and reels, guns and sportsman's equipment.

List of prizes and conditions of contest published each month in FIELD AND STREAM. As you will want to read the accounts each month of How, When, Where and with what tackle these big fish were killed, we are going to make you a special introductory offer of a three months' trial subscription to FIELD AND STREAM, together with the 1911 Angler's Guide, the best book on fishing published, telling how, when and where to fish, including the latest Game and Fish Laws for 1911 and a five-foot split bamboo bait casting rod, } **All for $1.00**

Send in your order today and learn all about this great contest.

FIELD AND STREAM PUBLISHING CO., 32 East 21st Street, New York City

Please mention YACHTING when corresponding with our advertisers.

when the end came to his hand, I bawled to h to make it securely fast. There were some dw trees a short distance up the beach, and he c ried the end of the warp to one of them, a secured it. Could I have seen any handspik lying about, I should have carried our end of warp to the forecastle capstan, and got a str upon it; but not being able to use the capst all of us men tailed on to the rope, and with united weight tautened it considerably.

"Now, Tripshore," said I, "I shall rig up sliding bowline-on-the-bight on this rope, but want two hauling lines—one to drag the bowl ashore, and the other to drag it back again. C you reach the land by that warp?"

He looked at it and said, "Yes, sir."

"If you don't feel strong enough for the j don't attempt it. I'll try. But if you have strength, you'll be the likelier man."

"I'll do it," he repeated, and pulled off his c

With feverish haste I cleared away the de sea lead-line, and hitched the end round waist; and in a moment he went over the bo laid hold of the warp and traveled along it h over fist. It wanted a real sailor with a lio heart in him to venture upon such an explo a man used to hanging on by his eyelids, and w fingers like fish-hooks. The rope curved int bight under his weight, and the white seas lea and snapped at his feet, and sometimes buried h in foam as high as his waist. I watched h without a wink of the eye. Recalling my thoug at that time, I may realize now the frightful tensity of my stare. I hardly seemed to brea Quite mechanically I let the lead-line slip o board as, foot by foot, he went along, making warp jump with his jerks as one hand passed other. One hundred yards seem but a short sp yet it made a fearfully long journey for t heroic man, and nothing but a brain of iron co have endured the sight of the furious, brok tumbling water below. Foot by foot he w along the rope. When near the breakers paused, and my heart seemed to stop beati He began to move again. Nine or ten times his hands pass and repass each other, and the tall breaker took him and swept him right al the warp. It passed, and he swung back lik pendulum, and again proceeded. But the recoil the same sea hove him along the warp again, again he swung heavily. I prayed aloud to Go give him strength. Thrice was he beaten in t manner, and each time left him swinging nea the shore. The fourth time he let go, and w ished in the scend of a breaker as it swelled fury up the beach. The man who had b standing watching him darted toward the where he had disappeared, and plunged up to middle in the water. Immediately after, the fo of Tripshore emerged, and both men ran up beach.

When I saw that Tripshore was safe, I seize piece of stout rope, and knotted it into the b line that is used at sea for slinging men. T done, I hitched it with a large eye upon warp, so that it should slide easily, and attac the end of the lead-line that Tripshore had ried ashore with him to it. I also bent on a similar line, the end of which was to be retai on board; and all this being accomplished with mad, headlong haste that a man will make works for his life, I went to Lady Brookes took her arm, and speaking of the bowline noose, that she might understand me, I told to make haste and get into it, that Tripshore the other man might pull her ashore.

She opened her eyes and got up, being, indo compelled to rise by the force I was obliged exert; but when she saw what she was to do, uttered a terrific shriek, and fell toward husband and clung to him.

If Your Boat Should be

SUNK IN COLLISION

BURNED TO WATER'S EDGE

WRECKED ON THE ROCKS

Our policy covers against these losses and many others.
Write for sample policy.

INSURANCE COMPANY OF NORTH AMERICA
THIRD AND WALNUT STREETS, PHILADELPHIA, PA.

Capital, $4,000,000 Founded, 1792
Surplus to Policyholders, over $7,000,000

IT COSTS BUT A FEW CENTS A DAY AND MAY BE WORTH HUNDREDS OF DOLLARS TO YOU

KENOSHA II.

Sails
Sail Covers
Awnings
Sea Anchors
Spray Hoods

Everything in canvas that your yacht may require

Correct and well fitting sails are just as important for winning races as the design of the boat

Our Sails will help you to win the Race

We had five Series Prize Winners in Larchmont's last Year's Race Week

JOHN CURTIN, Inc.

4 South Street NEW YORK

FREE! FREE! FREE!

You can have a generous sample bottle of 3-in-One Oil any time you write for it.

The sample will *convince* you that 3-in-One is the one and only preparation that keeps everything about any boat, launch or sail boat, shining like new, free from rust, verdigris and tarnish, and running like clockwork.

3-in-One is positively the best preparation for cleaning and polishing every veneered and varnished surface aboard. It "chases" all scars and mars. Restores the original finish "good as new."

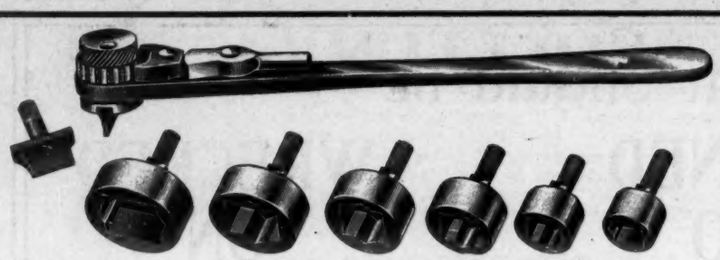
If it is applied to metal surfaces, neither fresh or salt water can possibly produce rust or tarnish.

Simply perfect for oiling fans, motors, delicate electrical machinery, phonographs, guns, revolvers and every kind of tool needed to keep the Yacht shipshape.

Don't lift anchor and leave 3-in-One at home. Buy at any store; 8 oz. 50c.; 3 oz. 25c.; Trial Size 10c.

REGISTERED 3-IN-ONE TRADE MARK

3-IN-ONE OIL CO.
27 BROADWAY
NEW YORK CITY



Best Wrench Ever Made For Motor Boats.

7 inches long
Weighs 16 oz.
Set consists of
2 Screw-driver Blades
& 6 Socket Wrenches
to take square and hexagon nuts and cap screws.

Send for descriptive price list.

LANE'S
OFFSET RATCHET SCREW-DRIVER AND WRENCH

J. C. McCARTY
21 Murray St., N.Y.

You Must See This Cup To Know Its Beauty

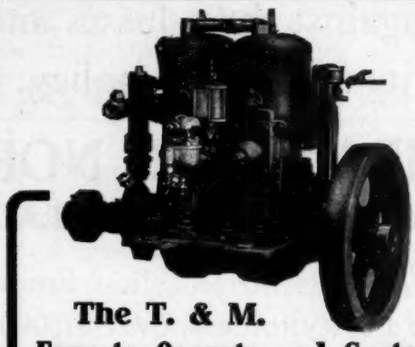
The grace and beauty of a Heintz Art Metal Trophy Cup will never be understood till seen.

We illustrate here a yachting trophy in which the deep, rich red of copper is contrasted strongly with an exquisite relief design in polished silver. This is but one of the *many*

HEINTZ ART METAL [Loving Cups and Trophies

which are attracting the enthusiastic approval of Clubs, Associations and Fraternities everywhere. There should be a dealer near you who can show these beautiful trophies. If not, write us at your convenience, and we will send you by return mail a richly illustrated Catalog showing many unique and artistic designs in Loving Cups, Trophies, Desk Sets, etc.

The HEINTZ ART METAL SHOP
1366 West Ave., Buffalo, N.Y.



The T. & M.
Easy to Operate and Control

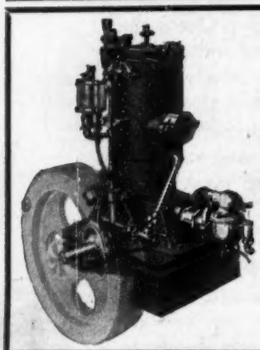
in every emergency—no water too crowded—no landing too difficult for the T. & M. Starts without cranking—is instantly reversible. Picks up speed quickly or can be throttled down to a snail's pace

T&M MARINE ENGINES

are built to withstand more than ordinary usage. Right type and size for every craft up to 65 feet—light, medium and heavy duty—2 to 120 H. P. Single or multiple cylinder—2-cycle, 2-port type.

Write for catalog and name of nearest dealer

TERMAAT & MONAHAN CO.
Dept. R, OSHKOSH, WIS.
Agencies in All Principal Cities



MEN WHO LIVE ON THE WATER
CHOOSE
ROYAL ENGINE

They know which engine gives the most efficient service, that can stand up best against the wear and tear of long runs at sea and does not break down.

Don't you think the choice of these men should help you to decide? Built in sizes from 2½ H. P. to 15 H. P.

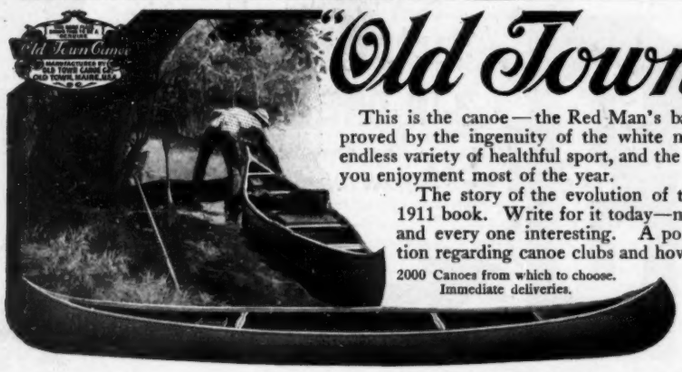
Write for Catalogue

The Royal Engine Co.
1045 Broad St.
Bridgeport, Conn.

WHEN YOU WANT A GOOD BOAT

Something that your friends will admire,
Something that will be *safe* and *comfortable* in rough weather, and
Something that can be sold at a fair price, when you are through with her,
Let ME figure on her.
I also have the best of facilities for laying up, outfitting and repair work.

JULIUS PETERSEN, NYACK, N.Y.
Phone, 670 Nyack



"Old Town Canoe"

This is the canoe—the Red Man's bark canoe—modernized and improved by the ingenuity of the white man's skill. Canoeing affords an endless variety of healthful sport, and the "Old Town Canoe" will furnish you enjoyment most of the year.

The story of the evolution of the canoe is told in our new, free 1911 book. Write for it today—many photographs and illustrations and every one interesting. A postal will bring it. Also information regarding canoe clubs and how you can form one in your town.

2000 Canoes from which to choose.
Immediate deliveries.

OLD TOWN CANOE CO.
1515 Middle Street
Old Town, Maine, U. S. A.
Agents in all cities

"If her life is to be saved, she *must* do it!" I shouted to Sir Mordaunt. The vessel is breaking up. If there is any delay, we must all perish. For God's sake, for all of our sakes, shut your ears to her cries, and help me to get her into that sling."

Made desperate by the peril of delay, I grasped the poor woman as I said this; but though the baronet did his best to assist me, he seemed crushed, broken down, without strength; and never shall I forget his face as I dragged his shrieking wife into the bows of the yacht, nor my own shame and horror of soul at the violence I was forced to exert to get her into the bowline.

I roared to the men to drag her along quickly. The warp was slippery with the wet, and the bowline traveled like a cringle upon a greased line. Twice the breakers buried the poor creature, and then they got her ashore and threw off the bowline, which I hastily hauled aboard.

I now called to Miss Tuke, and she got up without a word, her face of a shocking whiteness, her lips so tightly compressed that they were no more than an ashen line, but with a fine gleam of resolution in her eyes.

I passed the bowline under her arms, helped her over the bows, gave the signal to the men, and she was dragged along the warp, mute as a statue.

Her fine example heartened Mrs. Stretton, who was ready for the bowline before I had dragged it aboard. She threw it over her head quickly, got over the bow without help, and was presently safe on the beach.

But when it came to Carey's turn the poor girl shrieked out, and shrunk back in an agony of terror. I had so great a horror of forcing her, after my struggle with Lady Brookes, that I cried to Sir Mordaunt: "Let it be your turn, then. I will reason with Carey, and when you are gone she may follow quietly."

He knew as well as I that there was no time to be wasted, and I believe he, too, dreaded the spectacle of Carey's terror and the sound of her cries. I helped him over the bows, and whilst the men hauled him along, I seized the girl's hand and bade her mark how easy it was, how free from danger; and was thus speaking to her as tenderly and encouragingly as the state of mind I was then in would permit, when a great sea struck the yacht right amidships, and spreading like a gigantic fan, poured in a vast overwhelming deluge clean over the vessel. Nothing could have resisted that tremendous and crushing Niagara of a sea. In an instant I felt myself carried away by a force so astounding that temporarily it killed every instinct of life in me, and I don't remember that I made the least exertion to save myself, no, not by so much as extending my arms. But in the midst of the thunder of the enormous surge I could distinctly hear the rending and crashing of the yacht's hull, and knew by the sounds, as though I had seen the fabric demolished, that the schooner had gone to pieces.

When I rose to the surface of the water I found myself among a quantity of fragments of floating timber, one piece of which I seized. The waves were heights of creaming foam, and I seemed to rise and fall upon a surface of heaving, leaping, and wildly blown snow. Being run up by a wave, I saw about a stone's throw distant the figure of Norie clasping a short spar, and quite close to me was Carey, clinging to a fragment of one of the yacht's ribs. I waited until the next sea hove me up, and then shouted to her to hold tight, and that I would endeavor to get to her; and seizing a lighter piece of wood I pointed my face toward her and struck out with my feet, exerting all my strength. At last a sea swung the piece of timber to which she clung close to me, on which I grasped her arm, and seeing that

HARDWARE FOR WET PLACES

WANTED

Every Dealer, Boat and Engine builder in the world to send your name and address and receive (free) our

MAMMOTH CATALOG

just issued, the largest and most complete up-to-date line of Marine Hardware ever issued. We will also mail this mammoth catalog to anybody interested in Motor Boat Supplies on receipt of 20c. to cover postage.

DURKEE
TWO SOUTH STREET
NEW YORK

COMPLETE
Only $275

WE HAVE a few—less than 20 to be exact—of these boats—typical Truscott productions—built during the slack mid-winter season, which we shall sell at just about what they cost to make. Are you going to be one of those fortunate buyers? Everyone knows what a

TRUSCOTT

boat is. These are not skimped in any way—they are worthy of the Truscott name—only **you** save a hundred dollars or so by acting quickly. The boats are 20 feet O. A.—4 feet 6 inch beam, cypress planked, oak frames, 2 cylinder, 6 H. P. motor, a fine sea boat and a load carrier. We will gladly send you a full description and details, but **there is no time to lose.**

Truscott Boat Manufacturing Company
Dept. 32. **ST. JOSEPH, MICH.**

Member National Boat and Engine Company

CHICAGO NEW YORK PHILADELPHIA BOSTON
BUFFALO DETROIT SEATTLE

325-327 Broadway, New York

February 20, 1911.

THE J. S. BRETZ COMPANY,
250 W. 54th St., New York City.

Gentlemen:—

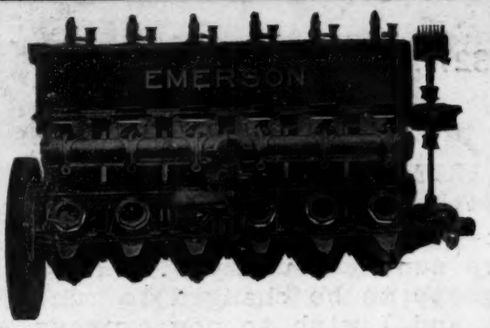
I have sent you up my U. & H. Master Magneto to be changed to run clockwise, and I wish to now express my satisfaction in the performance of this faithful instrument which never failed me once last season. I didn't have to clean a plug and my engine developed considerably more power. It is installed on a 24 H. P. Lamb engine in a 35-foot cruiser, the Oneiros, of 2 feet 6 inches draft--a photo of which I enclose. She was built by Oscar Anderson, South Norwalk, Conn. I started with Dry Cells, then a Motsinger, followed by a low tension Kurtz and a Splitdorf, then an Apple storage outfit and last your U. & H. Master Magneto.

You may think I am profuse in my praises, but I have had my troubles in the past, and no one fully appreciates the value of a reliable Magneto as the fellow who has had his sparking device go wrong in Hell Gate about 5 P. M.

Yours truly,

DUDLEY VAN HOLLAND.

ONEIROS—35 foot cruiser, 2 feet 6 inches draft, built by Oscar Anderson, South Norwalk, Conn. Speed, 12 miles per hour—equipped with 24 Horse Power Lamb Engine and U. & H. Master Magneto Ignition. Owned by Dudley Van Holland.



Judge a Thing by What it Does

100-125 H. P. Weight 300 lbs. Thirty-six Starts in one season and Thirty-six Firsts, defeating America's best known boats. This proves whether they will stand up and what they ***will*** do.

We are equipping the largest lot of boats above thirty miles per hour ever produced by one firm. Over Five Hundred flights in a Heavier-than-Air Machine without a single accident. The only engine that has flown with four men, and the only engine with sufficient power to alight in the snow and water and fly out again. This is the record of Antony Jannus in a Rex Smith Aeroplane at Washington, D. C., eclipsing all flying records in this or any other country.

WRITE FOR PARTICULARS

The Emerson Engine Co., Inc., ALEXANDRIA, VIRGINIA, U. S. A.

NEW YORK BRANCH—1737 BROADWAY, NEW YORK

PAINT THE BOTTOM OF

A Deep Sea Cruising Yacht or a Fast Racing Launch with

→ S & M ←

MARBLEHEAD ANTI-FOULING GREEN or WHITE

SMOOTH—SLIPPERY—DURABLE—HANDSOME

It is the most powerful preventive of marine growth, barnacles and Borers produced. Keeps the bottom of a cruising yacht absolutely clean, and is superior to Pot Lead for a racing finish.

For WOOD or STEEL. It is **not** a Copper Paint and **is** Non-Corrosive.

ABSOLUTELY GUARANTEED

FOR TROPICAL WATERS it is the only substitute for copper sheathing as a protection against Teredos.

STEARNS-McKAY MFG. CO., Marblehead, Mass., U. S. A.

AT LAST! An Adequate Signal for Motor Boats

The TYPHOON ELECTRIC HORN

$10 COMPLETE

F.O.B. CHICAGO

Will operate on 4-6-8 Dry Cells or Ignition Battery

CONFORMS WITH GOVERNMENT LAWS

THE TYPHOON SIGNAL CO., 1387 Milwaukee Ave., Chicago, Ill.

We also Manufacture Automobile Signals

Please mention YACHTING when corresponding with our advertisers.

the fragment that sustained her would suppor us both, I let go my piece of wreck, and grabbe with my left arm at hers. Had I bee alone, I can not flatter myself that I should hav exhibited anything like the spirit that was anima ing me now. I might have held on with a dogge madness for life, but I dare say no more tha my animal instincts would have operated. Th whirl of the seas swayed us round and round sometimes our faces looked toward the land, an sometimes toward the reef where the yacht ha gone to pieces, and where the water was boilin with a frightful sound. Whenever we confronte the beach I struck out with my legs. My drea was that the tide, as it gained in force, would ru us out to sea, in which case there would be n hope for us; but after we had been tossing i the water for upward of a quarter of an hour, saw from the height of a tall sea that we wer steadily nearing the beach.

I could see nothing of Norie, and supposed h was drowned. The wind, as I had anticipate from the appearance of the sky, had risen into gale, and the foam flew along the water lik sheets of steam; and whenever the combe whirled us with our faces to the blast, we ha like to have lost our sight as well as have bee suffocated by the fury with which the spra poured against us. As minute after minute we by, the agony of that struggle grew greater an greater, but in consequence of our steadi approach to the land, my spirits never utter sank. At last we found ourselves among th breakers, and then a roaring sea caught and ran us toward the beach at the rate of express train. It completely buried us, and I fe myself flying round and round in it like a whe Oh, the sickening, swooning, death-like sensati of that rush! the thunder of the water in th ears! the choking, suffocating, bursting feeling the head and breast! It hurled us upon the beac and flung us there with such violence that I l go, unable to keep my fists clinched. I was seiz by the hair, but in an instant wrenched away a torn back into the coiling arch of the ne breaker, which rolled shatteringly over me wi a sound as though the earth were splitting halves and then I suppose my senses left me, fo I have no further memory of struggling in th water. (To be continued.)

The Palm Beach Races

(Continued from page 403.)

Second, Jack Rabbit, W. A. Macduff.

Class C, over 32 feet waterline, Provisione Cup, 4½ miles:

Won by T. & S.

Second, Ace II.

Class B C, all boats, Harrison B. Moore Co Won by Kuleoff, K. C. Goodwin, Roberts engi

Class B C, all boats of all lenghts, Champag Cup, 18 miles:

Won by T. & S.

Second, Victor, G. F. Paddison, Loew-Vic engine.

THIRD DAY'S EVENTS.

Class D, boats under 17 miles speed, Park Tilford Cup, 4½ miles:

Won by Kuleoff.

Class E, boats over 17 miles speed, Friends C 4½ miles:

Won by T. & S.

Second, Victor.

Class D E, all boats over 12 miles speed, Bo tholomay Cup, 9 miles:

Won by Dewey; time, 40 minutes 26 secon

LAST DAY'S EVENT

Endurance contest for Palm Beach Gra Prize, $2,500, 103.5 nautical miles:

Won by T. & S. Average time, 28.11 miles

Consolation race, 4½ miles, boats over 12 mi

Won by Victor.